

1.3.4 Details of students undertaking Field Work/Projects/ Internships / Student Projects

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PRIVATE AND CONFIDENTIAL

November 10, 2023

Burra Prathyusha
Hyderabad

Dear Prathyusha,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 10, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "IDT - Determination" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Prasanth Kumar Reddy Yadam**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:

The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

a. The Company is part of the Thomson Reuters group of companies and upholds the shared values and standards of ethics and conduct that apply generally across the Thomson Reuters group of companies. As an employee of a Thomson Reuters group company you shall uphold the Thomson Reuters Code of Business Conduct and Ethics and any other codes or other relevant local company policies that the Company may from time to time notify as applying to its employees, including any modifications, alterations, additions, deletions or replacement of any of them at its sole discretion (together, Codes; each a Code).

The Codes are integral to the Company and are an important source of guidance to the Company's employees as to the standards of conduct expected of each of the Company's employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company's employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it's time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

You may be asked for a written or signed acknowledgement for certain Codes. If so requested, please acknowledge that you have received access to and read those Codes and that you understand your obligations to comply with the Code. Regardless of whether you have provided such written or signed acceptance, you expressly agree that each of the Codes are binding on you and that it is important for you to comply with them at all times.

If you have computer access, you will likely be able to submit your acknowledgment electronically. Information will be provided to you as to how to submit your electronic acknowledgment. If you do not have computer access, you should sign a copy of the acknowledgment form at the end of the Code and return it to your local Human Resources department.

b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

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THOMSON REUTERS

You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE: 11 November 2023

SIGNATURE OF CANDIDATE:



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not, patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

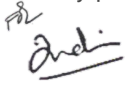
(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.


 HEAD
 Department of MCA
 Chaitanya Bharathi Institute of Technology (A)
 Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.

ACKNOWLEDGED AND AGREED

Signature: *B. Prathyusha*

Name: Burra Prathyusha

Title: Technology Intern

Date: 11 November 2023

Andi
HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 13, 2023

Munukutla Bala Bhaskara Anjali
Hyderabad

Dear Anjali,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 13, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "**IDT - Compliance - OIC**" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Mustafa Syed**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:


The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

a. The Company is part of the Thomson Reuters group of companies and upholds the shared values and standards of ethics and conduct that apply generally across the Thomson Reuters group of companies. As an employee of a Thomson Reuters group company you shall uphold the Thomson Reuters Code of Business Conduct and Ethics and any other codes or other relevant local company policies that the Company may from time to time notify as applying to its employees, including any modifications, alterations, additions, deletions or replacement of any of them at its sole discretion (together, Codes; each a Code).

The Codes are integral to the Company and are an important source of guidance to the Company's employees as to the standards of conduct expected of each of the Company's employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company's employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it's time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

You may be asked for a written or signed acknowledgement for certain Codes. If so requested, please acknowledge that you have received access to and read those Codes and that you understand your obligations to comply with the Code. Regardless of whether you have provided such written or signed acceptance, you expressly agree that each of the Codes are binding on you and that it is important for you to comply with them at all times.

If you have computer access, you will likely be able to submit your acknowledgment electronically. Information will be provided to you as to how to submit your electronic acknowledgment. If you do not have computer access, you should sign a copy of the acknowledgment form at the end of the Code and return it to your local Human Resources department.

b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.


HEAD
 Department of MCA
 Chaitanya Bharathi Institute of Technology (A)
 Gandipet, Hyderabad-500 075, Telangana.



You acknowledge that non-compliance with any of the Codes or "Confidentiality Inventions Rights & Non-Competition Agreement" of Company's entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.

PLACE: Hyderabad

DATE: 13 November 2023

SIGNATURE OF CANDIDATE:



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not, patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.

ACKNOWLEDGED AND AGREED

Signature:

Name: Munukutla Bala Bhaskara Anjali

Title: Technology Intern

Date: 13 November 2023

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 10, 2023

P Sushma
Hyderabad

Dear Sushma,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 10, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "IDT - Determination" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Prasanth Kumar Reddy Yadam**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

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Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

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HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

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Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

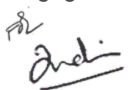
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b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.


 HEAD
 Department of MCA
 Chalanya Bharathi Institute of Technology (A)
 Gandipet, Hyderabad-500 075, Telangana.



THOMSON REUTERS

You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE: 11 November 2023

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not, patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;


(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.


 HEAD
 Department of MCA
 Chaitanya Bharathi Institute of Technology (A)
 Gandipet, Hyderabad-500 075, Telangana.
 Regd Office: Office No. B101, level 15, WeWork Enam
 Sambhav, G Block, C-20, Bandra Kurla Complex,
 Mumbai-400051
 CIN: U72100MH2003PTC138509



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.

ACKNOWLEDGED AND AGREED

Signature:

A small, square image containing a handwritten signature in black ink.

Name: P Sushma

Title: Technology Intern

Date: 11 November 2023

A handwritten signature in black ink, followed by a blue ink stamp. The stamp contains the following text: "HEAD", "Department of MCA", "Chaitanya Bharathi Institute of Technology (A)", and "Gandipet, Hyderabad-500 075, Telangana."/>

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 14, 2023

Penke Jeevana Jessi
Hyderabad

Dear Jeevana Jessi,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 14, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "**IDT - Compliance - OIC**" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Mustafa Syed**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:

The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

a. The Company is part of the Thomson Reuters group of companies and upholds the shared values and standards of ethics and conduct that apply generally across the Thomson Reuters group of companies. As an employee of a Thomson Reuters group company you shall uphold the Thomson Reuters Code of Business Conduct and Ethics and any other codes or other relevant local company policies that the Company may from time to time notify as applying to its employees, including any modifications, alterations, additions, deletions or replacement of any of them at its sole discretion (together, Codes; each a Code).

The Codes are integral to the Company and are an important source of guidance to the Company's employees as to the standards of conduct expected of each of the Company's employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company's employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it's time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

You may be asked for a written or signed acknowledgement for certain Codes. If so requested, please acknowledge that you have received access to and read those Codes and that you understand your obligations to comply with the Code. Regardless of whether you have provided such written or signed acceptance, you expressly agree that each of the Codes are binding on you and that it is important for you to comply with them at all times.

If you have computer access, you will likely be able to submit your acknowledgment electronically. Information will be provided to you as to how to submit your electronic acknowledgment. If you do not have computer access, you should sign a copy of the acknowledgment form at the end of the Code and return it to your local Human Resources department.

b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.

Thomson Reuters International Services Private Limited
Hyderabad Office: Floor 12, 13 & 14,
Building 11, Raheja Mindspace,
Hyderabad-500081

O +91 40 61275953

Regd Office: Office No. B101, level 15, WeWork Enam
Sambhav, G Block, C-20, Bandra Kurla Complex,
Mumbai-400051
CIN: U72100MH2003PTC138509



You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE: 14 November 2023

SIGNATURE OF CANDIDATE:

P. Teevana Jessi

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

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1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not, patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.

ACKNOWLEDGED AND AGREED


Signature:

P. Jeevana Jessi

Name: Penke Jeevana Jessi

Title: Technology Intern

Date: 14 November 2023


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 13, 2023

Tirumala Setty Nikhitha
Hyderabad

Dear Nikhitha,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 13, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "IDT - Compliance - OSU" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Mustafa Syed**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:


The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



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You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

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The Codes are integral to the Company and are an important source of guidance to the Company’s employees as to the standards of conduct expected of each of the Company’s employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company’s employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it’s time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

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b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

[Handwritten Signature]
HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE:

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not , patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.


ACKNOWLEDGED AND AGREED

Signature:

Name: Tirumala Setty Nikhitha

Title: Technology Intern

Date:


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 14, 2023

Bhaskaruni Dhanush Pavan Sai
Hyderabad

Dear Pavan Sai,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 14, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "IDT - Determination" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Prasanth Kumar Reddy Yadam**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:

The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



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The Codes are integral to the Company and are an important source of guidance to the Company’s employees as to the standards of conduct expected of each of the Company’s employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company’s employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it’s time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

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b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

[Handwritten Signature]
HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



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Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE:

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

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1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

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3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

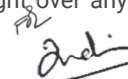
(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

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Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.


ACKNOWLEDGED AND AGREED

Signature:

Name: Bhaskaruni Dhanush Pavan Sai

Title: Technology Intern

Date:


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 13, 2023

Bhavesh Mahawar
Hyderabad

Dear Bhavesh,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 13, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "IDT - Compliance - OSU" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Mustafa Syed**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:

The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

a. The Company is part of the Thomson Reuters group of companies and upholds the shared values and standards of ethics and conduct that apply generally across the Thomson Reuters group of companies. As an employee of a Thomson Reuters group company you shall uphold the Thomson Reuters Code of Business Conduct and Ethics and any other codes or other relevant local company policies that the Company may from time to time notify as applying to its employees, including any modifications, alterations, additions, deletions or replacement of any of them at its sole discretion (together, Codes; each a Code).

The Codes are integral to the Company and are an important source of guidance to the Company's employees as to the standards of conduct expected of each of the Company's employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company's employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it's time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

You may be asked for a written or signed acknowledgement for certain Codes. If so requested, please acknowledge that you have received access to and read those Codes and that you understand your obligations to comply with the Code. Regardless of whether you have provided such written or signed acceptance, you expressly agree that each of the Codes are binding on you and that it is important for you to comply with them at all times.

If you have computer access, you will likely be able to submit your acknowledgment electronically. Information will be provided to you as to how to submit your electronic acknowledgment. If you do not have computer access, you should sign a copy of the acknowledgment form at the end of the Code and return it to your local Human Resources department.

b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



THOMSON REUTERS

You acknowledge that non-compliance with any of the Codes or "Confidentiality Inventions Rights & Non-Competition Agreement" of Company's entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE:

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not, patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;


(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.


 HEAD
 Department of MCA
 Chaitanya Bharathi Institute of Technology (A)
 Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.


ACKNOWLEDGED AND AGREED

Signature:

Name: Bhavesh Mahawar

Title: Technology Intern

Date:


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 10, 2023

Dhruv Rajpurohit
Hyderabad

Dear Dhruv,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 10, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of “**IDT - Determination**” effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Madhu Polineni**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:


The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

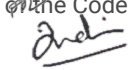
a. The Company is part of the Thomson Reuters group of companies and upholds the shared values and standards of ethics and conduct that apply generally across the Thomson Reuters group of companies. As an employee of a Thomson Reuters group company you shall uphold the Thomson Reuters Code of Business Conduct and Ethics and any other codes or other relevant local company policies that the Company may from time to time notify as applying to its employees, including any modifications, alterations, additions, deletions or replacement of any of them at its sole discretion (together, Codes; each a Code).

The Codes are integral to the Company and are an important source of guidance to the Company's employees as to the standards of conduct expected of each of the Company's employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company's employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it's time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

You may be asked for a written or signed acknowledgement for certain Codes. If so requested, please acknowledge that you have received access to and read those Codes and that you understand your obligations to comply with the Code. Regardless of whether you have provided such written or signed acceptance, you expressly agree that each of the Codes are binding on you and that it is important for you to comply with them at all times.

If you have computer access, you will likely be able to submit your acknowledgment electronically. Information will be provided to you as to how to submit your electronic acknowledgment. If you do not have computer access, you should sign a copy of the acknowledgment form at the end of the Code and return it to your local Human Resources department.

b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.


 HEAD
 Department of MCA
 Chaitanya Bharathi Institute of Technology (A)
 Gandipet, Hyderabad-500 075, Telangana.



You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE: 11 November 2023

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not, patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

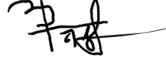
6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.

ACKNOWLEDGED AND AGREED

Signature: 
Name: Dhruv Rajpurohit
Title: Technology Intern
Date: 11 November 2023


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 14, 2023

Pabolu Sai Krishna
Hyderabad

Dear Sai Krishna,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 14, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "**IDT - Compliance - OIC**" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Mustafa Syed**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:


The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

a. The Company is part of the Thomson Reuters group of companies and upholds the shared values and standards of ethics and conduct that apply generally across the Thomson Reuters group of companies. As an employee of a Thomson Reuters group company you shall uphold the Thomson Reuters Code of Business Conduct and Ethics and any other codes or other relevant local company policies that the Company may from time to time notify as applying to its employees, including any modifications, alterations, additions, deletions or replacement of any of them at its sole discretion (together, Codes; each a Code).

The Codes are integral to the Company and are an important source of guidance to the Company's employees as to the standards of conduct expected of each of the Company's employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company's employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it's time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

You may be asked for a written or signed acknowledgement for certain Codes. If so requested, please acknowledge that you have received access to and read those Codes and that you understand your obligations to comply with the Code. Regardless of whether you have provided such written or signed acceptance, you expressly agree that each of the Codes are binding on you and that it is important for you to comply with them at all times.

If you have computer access, you will likely be able to submit your acknowledgment electronically. Information will be provided to you as to how to submit your electronic acknowledgment. If you do not have computer access, you should sign a copy of the acknowledgment form at the end of the Code and return it to your local Human Resources department.

b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.
O +91 40 61275953

Regd Office: Office No. B101, level 15, WeWork Enam
Sambhav, G Block, C-20, Bandra Kurla Complex,
Mumbai-400051
CIN: U72100MH2003PTC138509

Thomson Reuters International Services Private Limited
Hyderabad Office: Floor 12, 13 & 14,
Building 11, Raheja Mindspace,
Hyderabad-500081



You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE:

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not , patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.


ACKNOWLEDGED AND AGREED

Signature:

Name: Pabolu Sai Krishna

Title: Technology Intern

Date:


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 10, 2023

Reddy Gari Maneesh Reddy
Hyderabad

Dear Maneesh Reddy,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 10, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "IDT - Determination" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Prasanth Kumar Reddy Yadam**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:

The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

a. The Company is part of the Thomson Reuters group of companies and upholds the shared values and standards of ethics and conduct that apply generally across the Thomson Reuters group of companies. As an employee of a Thomson Reuters group company you shall uphold the Thomson Reuters Code of Business Conduct and Ethics and any other codes or other relevant local company policies that the Company may from time to time notify as applying to its employees, including any modifications, alterations, additions, deletions or replacement of any of them at its sole discretion (together, Codes; each a Code).

The Codes are integral to the Company and are an important source of guidance to the Company’s employees as to the standards of conduct expected of each of the Company’s employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company’s employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it’s time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

You may be asked for a written or signed acknowledgement for certain Codes. If so requested, please acknowledge that you have received access to and read those Codes and that you understand your obligations to comply with the Code. Regardless of whether you have provided such written or signed acceptance, you expressly agree that each of the Codes are binding on you and that it is important for you to comply with them at all times.

If you have computer access, you will likely be able to submit your acknowledgment electronically. Information will be provided to you as to how to submit your electronic acknowledgment. If you do not have computer access, you should sign a copy of the acknowledgment form at the end of the Code and return it to your local Human Resources department.

b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Campus, Hyderabad-500 075, Telangana
O +91 40 81275953
Regional Office: Office No. B101, level 15, WeWork Enam
Sambhav, G Block, C-20, Bandra Kurla Complex,
Mumbai-400051
CIN: U72100MH2003PTC138509



You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE:

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not , patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.


ACKNOWLEDGED AND AGREED

Signature:

Name: Reddy Gari Maneesh Reddy

Title: Technology Intern

Date:


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 13, 2023

G Rohit
Hyderabad

Dear Rohit,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 13, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "IDT - Compliance - OSU" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Mustafa Syed**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:

The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

Confidentiality obligations set out in this clause do not apply to information that the Company generally makes known to the public or otherwise comes into public domain through no fault of yours.

Code of Conduct:

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The Codes are integral to the Company and are an important source of guidance to the Company’s employees as to the standards of conduct expected of each of the Company’s employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company’s employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it’s time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

You may be asked for a written or signed acknowledgement for certain Codes. If so requested, please acknowledge that you have received access to and read those Codes and that you understand your obligations to comply with the Code. Regardless of whether you have provided such written or signed acceptance, you expressly agree that each of the Codes are binding on you and that it is important for you to comply with them at all times.

If you have computer access, you will likely be able to submit your acknowledgment electronically. Information will be provided to you as to how to submit your electronic acknowledgment. If you do not have computer access, you should sign a copy of the acknowledgment form at the end of the Code and return it to your local Human Resources department.

b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE:

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not , patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.

HEAD

Department of MCA

Chaitanya Bharathi Institute of Technology (A)

Gandipet, Hyderabad-500 076, Telangana



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.


ACKNOWLEDGED AND AGREED

Signature:

Name: G Rohit

Title: Technology Intern

Date:


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 14, 2023

Shanivarapu Prasanna Kumar Reddy
Hyderabad

Dear Prasanna Kumar,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 14, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of **"IDT - Compliance - OIC"** effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Mustafa Syed**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:


The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Confidentiality:

You acknowledge that information of a confidential nature pertaining to the Company or any other Group Company may come into your possession or become otherwise known to you in the course of your employment. Such information may include (but is not limited to) trade secrets, know-how, business processes, product information, pricing, business strategy, customer lists, supplier terms and conditions, employment practices, employee particulars, etc. All such information is called **Confidential Information**.

You will keep the Confidential Information as confidential and not use it for any purpose other than the performance of your duties as an employee of the Company. You will not disclose it to any third party, in any manner, except to the extent necessary for the relevant third party to know in order for you to perform your duties as an employee of the Company, and provided you take appropriate and reasonable steps to make sure such third party understands the confidential nature of the Confidential Information and is appropriately bound by confidentiality obligations consistent with these terms or more stringent as the circumstances may warrant.

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The Codes are integral to the Company and are an important source of guidance to the Company’s employees as to the standards of conduct expected of each of the Company’s employees. While no document could possibly cover every question or circumstance with regard to your conduct and discipline as the Company’s employee, the Codes provide guidance on some of the conduct issues that are critically important to us. Just as important, the Codes can help you identify when it’s time to ask for guidance from your manager, a Thomson Reuters Human Resources business partner or a Thomson Reuters lawyer.

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b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana
O +91 9 61275953



You acknowledge that non-compliance with any of the Codes or “Confidentiality Inventions Rights & Non-Competition Agreement” of Company’s entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE:

SIGNATURE OF CANDIDATE:

HEAD
Department of MCA
Chalanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not , patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

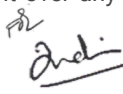
(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.

5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.


ACKNOWLEDGED AND AGREED

Signature:

Name: Shanivarapu Prasanna Kumar Reddy

Title: Technology Intern

Date:


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



PRIVATE AND CONFIDENTIAL

November 13, 2023

Soma Vamshi
Hyderabad

Dear Vamshi,

SUB: LETTER OF ENGAGEMENT AS TRAINEE / INTERN

This has reference to your application dated **November 13, 2023** seeking an opportunity to work as an intern / trainee in our establishment. Based on your interview, we are pleased to inform you that you have been selected for undergoing training in our Organization as an **Technology Intern** on the following terms and conditions:

Nature of Training:

You will be undergoing training in our establishment in the area of "**IDT - Compliance - OIC**" effective from **January 3, 2024** and during the course of training you shall be under the guidance of **Mustafa Syed**. You may be required to undergo training in different shifts if necessary to enable you to get adequate exposure of the functioning of different departments. Your training hours will be the same as that of regular working hours for the staff. You will observe weekly holiday and other holidays at par with regular staff. You shall follow rules and regulations of the work place during the period of training.

Duration of Training:


The duration of training will be from **January 3, 2024** for a period of **10 Months** from the date of commencement of the Training. Unless the Company extends the period of your Training in writing, your Training / engagement with the Company shall automatically stand terminated at the expiry of the Training period on **November 4, 2024** and in no way mean a full time employment with the Company. In case of any performance related issues or violation of any Company Policy the Internship / engagement will be withdrawn by issuing a Termination Letter.

Stipend:

Scholarship: You will be paid INR. **30,000** (Per Month) as stipend for the period of training. The payment shall be subjected to deductions of applicable taxes, and other levies, contributions, etc. as per the relevant laws and contractual terms as may be applicable and amended from time to time. Other than the above payment you will not be entitled to receive any other amount or insurance benefits.

Date of Commencement of Training:

In case the above terms and conditions are acceptable to you, you are required to return the duplicate copy of this letter of engagement duly signed and report for Training on or before **January 3, 2024**. While reporting for Training please bring 2 Passport size photographs, PAN card copy.


HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



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a. The Company is part of the Thomson Reuters group of companies and upholds the shared values and standards of ethics and conduct that apply generally across the Thomson Reuters group of companies. As an employee of a Thomson Reuters group company you shall uphold the Thomson Reuters Code of Business Conduct and Ethics and any other codes or other relevant local company policies that the Company may from time to time notify as applying to its employees, including any modifications, alterations, additions, deletions or replacement of any of them at its sole discretion (together, Codes; each a Code).

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b. The Company reserves the right to terminate your employment / engagement at any time if it does not receive your acknowledged, signed copy of any of the Codes.

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.



THOMSON REUTERS

You acknowledge that non-compliance with any of the Codes or "Confidentiality Inventions Rights & Non-Competition Agreement" of Company's entity may result in disciplinary action against you, including, where the Company considers necessary under the circumstances, termination of your employment / engagement with or without notice.

Yours faithfully,

Thomson Reuters International Services Private Limited
(A Thomson Reuters Company)

Catriona Mackness
Senior Director, Regional HR India

HEAD
Department of MCA
Chaitanya Bharathi Institute of Technology (A)
Gandipet, Hyderabad-500 075, Telangana.

ENDORSEMENT

I accept all the terms and conditions stipulated in this letter of engagement.
I shall report to Training on **January 3, 2024**.

PLACE: Hyderabad

DATE: 13 November 2023

SIGNATURE OF CANDIDATE:



Intellectual Property related Undertaking

By this undertaking (Undertaking), I agree, acknowledge and undertake as follows:

1. If at any time in the course of my employment with the Company, I make or discover or participate in the making or discovery of any Intellectual Property, I:

(i) will promptly make full and complete disclosure about the Intellectual Property to the Company; and

(ii) Hereby agree that all such Intellectual Property will be the absolute property of the Company and that I shall have no rights with respect to such Intellectual Property.

2. The term 'Intellectual Property' means and includes inventions (whether patentable or not), copyrightable works, improvements, developments, discoveries, proprietary information, trademarks, logos, know how, processes, designs, utility models, mask work rights, rights in databases and moral rights and all works, whether present or arising in future (whether or not, patent, copyright or other similar protection has been applied for registration or granted registration) or forms of protection having equivalent effect anywhere in the world. For the avoidance of doubt, this Undertaking does not limit my moral rights to the extent permitted by law.

3. I will do all things necessary, at the Company's request and expense (whether during or after the term of your employment) to ensure that all rights in the Intellectual Property vest in the Company including without limitation:

(a) execution of necessary documents and written confirmations;

(b) execution of powers of attorney or letters of authority in favour of the Company or its nominees to make applications for registration of such Intellectual Property or enforcing the Company's rights in such Intellectual Property;

(c) joining in any action to perfect or enforce the Company's rights in the Intellectual Property. I agree that the benefits of any proceeds from any action that the Company takes in relation to enforcing its rights in the Intellectual Property belong exclusively to the Company. I further agree that the Company's rights granted by me by this Undertaking will not be impaired by any non-use of the Intellectual Property vested in the Company.

4. I agree that payment of remuneration by the Company to me includes consideration for the rights granted by me under this Undertaking and that there are, in addition, no royalties or any other payments that are due or will accrue to me in consideration of the rights granted by me under this Undertaking.


5. Where I have any moral rights under law with respect to any such Intellectual Property, I hereby waive any such rights to the fullest extent permitted by law from time to time. Even where law does not permit such waiver of moral rights, I hereby undertake not to exercise such moral rights in any manner that is inconsistent with the vesting of the Intellectual Property rights in the Company.

6. I will not do anything that is inconsistent with the rights granted by me under this Undertaking or otherwise take advantage of any legal possibility of staking a claim or right over any part of the rights in the Intellectual Property assigned to the Company under this Undertaking.



7. I will not use any Intellectual Property otherwise than in relation to the Company's business and will use the Company's Intellectual Property only in accordance with the Company's instructions from time to time or the Company's policies for the time being in force.

ACKNOWLEDGED AND AGREED

Signature: 

Name: Soma Vamshi

Title: Technology Intern

Date: 13 November 2023



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A PROJECT REPORT ON
FORECASTING NEAR-TERM ARRIVAL DELAY TIMES
IN FREIGHT RAIL OPERATIONS WITH DATA-
DRIVEN MODELS

Submitted in partial fulfilment for the award of the degree of
MASTER OF COMPUTER APPLICATIONS (2022-2024)

By

Aamudala Bhavani

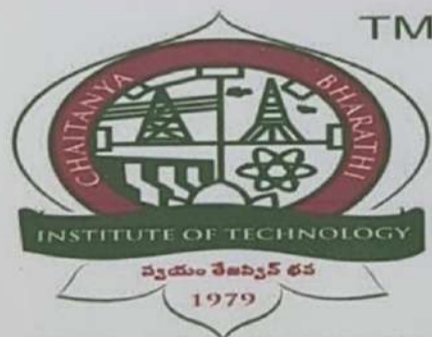
160122862001

Under the esteemed guidance of

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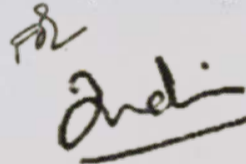
DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)

(Affiliated to Osmania University, Hyderabad)

Hyderabad, Telangana (INDIA) - 500075

ABSTRACT

This study addresses the challenge of optimizing rail infrastructure use by focusing on short-term arrival delay prediction in freight rail operations. Leveraging data from the National Railway Company of Luxembourg on routes connecting Bettembourg to nine terminal stations across the EU, we compare various machine learning models, including LightGBM, Linear Regression, Random Forest, KNN, XGBoost, and a Voting Regressor ensemble. The lightGBM model outperforms others, demonstrating its efficacy in predicting arrival delay times. Departure delay time, trip distance, and train composition emerge as crucial features influencing short-term arrival delays. Our findings offer valuable insights for the National Railway Company of Luxembourg, proposing the developed short-term prediction model as a decision-support system. The model enables estimation of future operational times, empowering operators to proactively manage disruptions. Additionally, the study extends the analysis by introducing a Voting Regressor ensemble, further enhancing predictive accuracy. This research contributes to advancing rail disruption prediction models, fostering improved operational efficiency and reduced delays in freight rail transportation.



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A PROJECT REPORT ON
**DETECTION OF MULTIPLE RETINAL
DISEASES USING CNN**

Major project submitted in partial fulfillment of the requirements for
the award of the degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

by

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Table of Contents

Abstract

Retinal diseases are increasingly common among people of all ages, impacting the eye's retina, a vital layer of photosensitive optic nerve tissue. This layer plays a critical role in vision by transforming the light focused by the eye's lens into electrical impulses. These impulses are then transmitted to the brain through the optic nerve, allowing for visual recognition. Central to this process is the macula, located in the middle of the retina, which is responsible for detailed and central vision.

The retina's ability to process and relay visual information is essential for clear vision. However, various retinal diseases can impair this function, leading to abnormalities in perception. Conditions such as age-related macular degeneration, diabetic retinopathy, and retinal detachment are some examples of diseases that can affect the retina, each posing unique challenges for diagnosis and treatment.

In recent years, state-of-the-art machine learning (ML) and deep learning (DL) models have been developed to enhance the detection and classification of retinal diseases. These advanced technologies analyze vast amounts of data and recognize patterns that may be indicative of specific retinal conditions. The implementation of ML and DL in ophthalmology has enabled researchers and physicians to detect these vital disorders more efficiently and accurately.

These innovative models are trained on extensive datasets of retinal images, learning to identify the subtle signs of various diseases. Consequently, they can assist in early diagnosis, which is crucial for preventing the progression of retinal conditions and preserving vision. The use of ML and DL not only improves the accuracy of diagnoses but also facilitates personalized treatment plans, ultimately leading to better patient outcomes.

In summary, the integration of machine learning and deep learning in the field of ophthalmology marks a significant advancement in the fight against retinal diseases. These technologies offer powerful tools for the early detection, classification, and management of retinal disorders, enhancing the ability of healthcare professionals to safeguard and improve visual health.

v

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A PROJECT REPORT ON

**DEVELOPING AN INTELLIGENT WILDLIFE
MONITORING SYSTEM WITH HYBRID DEEP
LEARNING FOR ANIMAL DETECTION AND
ALERT MESSAGES**

Major project submitted in partial fulfillment of the requirements for the
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A PROJECT REPORT ON
**SKIN CANCER CLASSIFICATION USING
OPTIMIZED CONVOLUTIONAL NEURAL
NETWORK OF HEALTHCARE SYSTEM**

Major project submitted in partial fulfillment of the requirements
for the award of the degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

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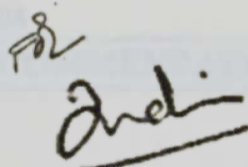
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ABSTRACT

This report explains that skin cancer is a common form of cancer worldwide and that's why an early and accurate diagnosis is crucial for patient survival. However, the clinical evaluation of skin lesions is complicated by lengthy waiting times and subjective interpretations. Deep learning techniques have been developed to assist dermatologists in making more accurate diagnoses to tackle these obstacles. The objective of this report is to develop reliable deep learning prediction models for skin cancer classification; (i) address a typical severe class imbalance problem, which arises because the class of skin-affected patients is significantly smaller than the class of healthy patients; and (ii) interpret the model output to better understand the decision-making mechanism. (iii) Using an Android application, propose an end-to-end smart healthcare system. The effectiveness of the proposed DL technique was evaluated based on generalization capability and classification accuracy metrics. Utilizing the HAM10000 dataset and an optimized CNN, the study identifies seven types of skin cancer. Two optimization functions Adam and RMSprop and three activation functions Relu, Swish, and Tanh were used to train the model. In addition, an XAI-based skin lesion classification system with Grad-CAM and Grad-CAM++ was developed to explain the model's decisions. This system can assist physicians in making accurate early skin cancer diagnoses in their early stages.



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A PROJECT REPORT ON
ENHANCING CLOUD SECURITY WITH
MACHINE LEARNING BASED INTRUSION
DETECTION SYSTEM

Major project submitted in partial fulfilment of the requirements for the
award of the degree of

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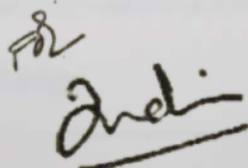
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ABSTRACT

Cloud computing (CC) is a novel technology that has made it easier to access network and computer resources on demand such as storage and data management services. In addition, it aims to strengthen systems and make them useful. For this reason, a set of solutions have been implemented to improve cloud security by monitoring resources, services, and networks, then detect attacks. Actually, intrusion detection system (IDS) is an enhanced mechanism used to control traffic within networks and detect abnormal activities. This paper presents a cloud-based intrusion detection model based on random forest (RF) and feature engineering. Specifically, the RF classifier is obtained and integrated to enhance accuracy (ACC) of the proposed detection model. The proposed model approach has been evaluated and validated on two datasets and gives good ACC using Bot-IoT and NSL-KDD datasets, respectively. Consequently, the obtained results present good performances in terms of ACC, precision, and recall when compared to the recent related works. The model's implementation is aimed at improving cloud security by continuously monitoring cloud resources, services, and networks. By applying machine learning algorithms, the model identifies unusual activities or patterns associated with cyber-attacks, thereby enhancing the overall security posture of the cloud infrastructure. The model's performance is evaluated and validated using two datasets: Bot-IoT and NSL-KDD. These datasets are common benchmarks in the field of intrusion detection. The model demonstrates high accuracy in detecting intrusions compared to recent related works, indicating its effectiveness and reliability in identifying potential security threats. The project's includes a Voting Classifier combination of RF + ADaBoost and Stacking Classifier with RF + MLP with LightGBM got 99% and 100% of accuracy for Kdd-Cup and Bot-IoT data respectively for enhanced cloud detection performance.



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A PROJECT REPORT ON
SOCIAL MEDIA INSIGHT: PREDICTING SELF-HARM
TRENDS

Major project submitted in partial fulfillment of the requirements for the
award of the degree of

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(2022-2024)

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A handwritten signature in black ink, appearing to read 'Indi', is written over a horizontal line.

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Gandipet, Hyderabad-500 075, Telangana.

ABSTRACT

Self-harm pertains to actions of self-inflicted poisoning or injury that lead to either nonfatal injuries or death, irrespective of the individual's intention. Self-harm incidents not only cause loss to individuals but also incur a negative impact on the nation's economy. Studies have demonstrated an increase in trends of self-harm that are correlated with the emergence of technological advancements and swift urban expansion in developing countries. The capacity to nowcast and forecast national-level patterns of self-harm trends could be imperative to policymakers and stakeholders in the public health sector, as it would enable them to implement prompt measures to counteract the underlying factors or avert these projected. However, in some countries, such historical statistics may be challenging to obtain or insufficient for accurate prediction, impeding the ability to comprehend and project the national self-harm landscape in a timely manner. This paper proposes FAST, a framework designed to forecast self-harm patterns at the national level by analyzing mental signals obtained from a large volume of social media data. These signals serve as a proxy for real-world population mental health that could be used to enhance the forecast ability of self-harm trends. Specifically, language-agnostic language models are first trained to extract different mental signals from collected social media messages. Then, these signals extracted from tweets to forecast death and injury cases resulting from self-harm. The results show that the proposed method outperformed the traditional ARIMA baseline by 43.56% and 36.48% on average in terms of MAPE on forecasting death and injury cases from self-harm, respectively. The initial exploration of utilizing aggregated social media information for the purposes of now casting and forecasting trends of self-harm on a nationwide scale. The results not only provide insight into improved forecasting techniques for self-harm trends but also establish a foundation for forthcoming social-network-driven applications that hinge on the capacity to predict socioeconomic factors. As extension work we have experimented with Decision Tree algorithm which is the best algorithms in machine learning and this algorithms are giving lesser MAE error compare to other algorithms.

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**A PROJECT REPORT ON
RANSOMWARE DETECTION VIA PROCESSOR
AND DISK ACTIVITY ANALYSIS**

Major Project Submitted in partial fulfilment of the requirements for the
award of the degree of

MASTER OF COMPUTER APPLICATIONS

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ABSTRACT

Ransomware often evades antivirus tools, encrypts files, and renders the target computer and its data unusable. The current approaches to detect such ransomware include monitoring processes, system calls, and file activities on the target system and analyzing the data collected. Monitoring multiple processes has a very high overhead; newer ransomware may interfere with the monitoring and corrupt the collected data. This paper presents a robust and practical approach to detecting ransomware in execution on a virtual machine (VM). We collect data for selected processor and disk I/O events for the entire VM from the host machine and use a machine learning (ML) classifier to develop a detection model. This approach avoids the overhead of continuously monitoring every process on the target machine and prevents the risk of data contamination by ransomware. Furthermore, it is resilient to variations in user workloads. It provides fast detection with a high probability for known (used for training the ML model) and unknown (not used for training) ransomware. The random forest (RF) classifier performed the best of the seven ML classifiers we tested. Over six different user loads and 22 ransomware, the RF model detected ransomware within 400 milliseconds with a 0.98 probability.

In propose work we have used all traditional algorithms but not used any advance features optimization algorithms so as extension we have experimented with CNN2D (2D convolution neural networks) which will optimized dataset features in multiple layers which help in getting relevant data for training and can improve detection accuracy.


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MAJOR PROJECT REPORT
ON
**ENHANCED OCCUPATION CLASSIFICATION
FOR ONLINE JOB ADS USING HYBRID
MACHINE LEARNING**

Major project submitted in partial fulfillment of the requirements for the award of the
degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

by

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TABLE OF CONTENTS

ABSTRACT

Data science techniques are powerful tools for extracting knowledge from large datasets. Analyzing the job market by classifying online job advertisements (ads) has recently received much attention. Various approaches for multi-label classification (e.g., self-supervised learning and clustering) have been developed to identify the occupation from a job advertisement and have achieved a satisfying performance. However, these approaches require labeled datasets with hundreds of thousands of examples and focus on specific databases such as the Occupational Information Network (O*NET) that are more adapted to the US job market. In this paper, we present a two-stage job title identification methodology to address the case of small datasets. We use Bidirectional Encoder Representations from Transformers (BERT) to first classify the job ads according to their corresponding sector (e.g., Information Technology, Agriculture). Then, we use unsupervised machine learning algorithms and some similarity measures to find the closest matching job title from the list of occupations within the predicted sector. We also propose a novel document embedding strategy to address the issues of processing and classifying job ads. Our experimental results show that the proposed two-stage approach improves the job title identification accuracy by 14% to achieve more than 85% in some sectors. Moreover, we found that incorporating document embedding-based approaches such as weighting strategies and noise removal improves the classification accuracy by 23.5% compared to approaches based on the Bag of words model. Further evaluations verify that the proposed methodology either outperforms or performs at least as well as the state-of-the-art methods. Applying the proposed methodology to Moroccan job market data has helped identify emerging and high-demand occupations in Morocco.

I used all traditional machine learning algorithms such as SVM, Naïve Bayes and Logistic Regression and not experimented with any other advanced algorithms like CNN2D, BI-LSTM etc. So as extension I have experimented with CNN2D algorithm as this algorithm filtered features at multipleneurons iterations to train model with best features and this best features help CNN in getting high accuracy.


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MAJOR PROJECT REPORT
ON
UTILIZING CONVOLUTIONAL NEURAL NETWORKS
FOR IDENTIFYING APPLE DISEASES FROM LEAF
IMAGES

Major Project Submitted in partial fulfillment for the award of the
degree of

MASTER OF COMPUTER APPLICATIONS
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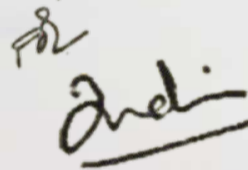
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ABSTRACT

Plant diseases are a major cause of crop losses worldwide. The absence of specialist knowledge makes the detection of plant diseases difficult and challenging. Models based on deep learning offer promising methods to identify plant diseases using leaf images. However, the need for larger training sets, computational complexity, overfitting, etc. are the main issues that still need to be resolved with these techniques. In work, the paper proposes a Convolutional Neural Network (CNN) model that uses augmentation techniques such as shift, shear, scaling, zoom, and flipping to generate additional samples and increase the training set without actually capturing more images. The proposed model is trained for apple crop using a publicly available dataset PlantVillage to identify Scab, Black rot, and Cedar rust diseases in apple leaves. The experimental results show that the proposed model achieves good classification accuracy and needs lesser storage and computational resources than several existing deep CNN models. The proposed model is highly suitable for deploying in handheld devices.



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A PROJECT REPORT ON

IDENTIFYING STUDENTS PERFORMANCE AT-RISK AND MINIMIZING FAILURE USING MACHINE LEARNING

Major project submitted in partial fulfillment of the requirements for the
award of the degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

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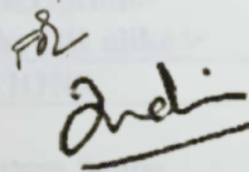
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ABSTRACT

Education is very important for students' future success. The performance of students can be supported by the extra assignments and projects given by the instructors for students with low performance. However, a major problem is that students at-risk cannot be identified early. This situation is being investigated by various researchers using Machine Learning techniques. Machine learning is used in a variety of areas and has also begun to be used to identify students at-risk early and to provide support by instructors. This research paper discusses the performance results found using Machine learning algorithms to identify at-risk students and minimize student failure. The main purpose of this project is to create a hybrid model using the ensemble stacking method and to predict at-risk students using this model. We used machine learning algorithms such as Random Forest, Decision Tree and XGBoosting in this project. The performance of each machine learning algorithm presented in the project was measured with various metrics. Thus, the hybrid model by combining algorithms that give the best prediction results is presented in this study. The data set containing the demographic and academic information of the students was used to train and test the model. In addition, a web application developed for the effective use of the hybrid model and for obtaining prediction results is presented in the report. In the proposed method, it has been realized that stratified k-fold cross validation and hyperparameter optimization techniques increased the performance of the models. The hybrid ensemble model was tested with a combination of two different datasets to understand the importance of the data features. The accuracy of the hybrid model was obtained as 94.8%. This study focuses on predicting the performance of at-risk students early. Thus, teachers will be able to provide extra assistance to students with low performance.



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A PROJECT REPORT ON

Identification of Herbal Medicine Plant Leaf using Deep Learning

Major project submitted in partial fulfillment of the requirements for the award
of the degree of

Master of Computer Applications

(2022-2024)

by

JOGU UMA

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Abstract

In recent years, there has been a growing interest in the identification and classification of medicinal plants due to their potential health benefits. This project presents an innovative AI-based approach for advancing medicinal plant identification using deep learning techniques, specifically employing the Xception architecture. Developed using Python, our model achieves remarkable training accuracy of 93.34% and validation accuracy of 96.79%. To train and evaluate the model, we utilized the VNPlant-200 dataset, consisting of a comprehensive collection of 17,973 images of medicinal plants distributed among 200 distinct categories. This dataset encompasses a wide variety of plant species with diverse visual characteristics, enabling robust and accurate plant identification. Through a meticulous training process, the Xception-based model learns intricate patterns and features within the images, enabling it to effectively distinguish between different medicinal plant species. Leveraging the power of deep learning, our approach significantly enhances the accuracy and efficiency of medicinal plant identification. Additionally, hyper parameter tuning and fine-tuning of the Xception architecture were performed to optimize the model's performance and achieve exceptional accuracy. The results obtained demonstrate the efficacy of our AI-based approach for medicinal plant identification. The high training and validation accuracies validate the model's capability to accurately recognize and categorize medicinal plant species and healthcare professionals to rapidly and reliably identify medicinal plants for various purposes. Overall, this project showcases the potential of AI and deep learning techniques, specifically the Xception architecture, in advancing medicinal plant identification. The successful application of our approach on the VNPlant-200 dataset opens up new possibilities for further research and development in this domain, fostering advancements in herbal medicine and botanical studies


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A PROJECT REPORT ON

**SMART FARMING: PREDICTING WATER
STRESS IN TOMATO CULTIVATION
USING BIORISTOR TECHNOLOGY**

Major project submitted in partial fulfillment of the requirements
for the award of the degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

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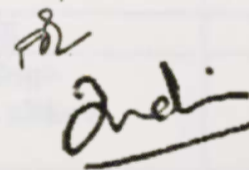
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ABSTRACT

Water stress and in particular drought are some of the most significant factors affecting plant growth, food production, and thus food security. Furthermore, the possibility to predict and shape irrigation on real plant demands is priceless. The objective of this study is to characterize, classify, and forecast water stress in tomato plants by means of in vivo real time data obtained through a novel sensor, named bioristor, and of different artificial intelligence models. First of all, we have applied classification models, namely Decision Trees and Random Forest, to try to distinguish four different stress statuses of tomato plants. Then, we have predicted, through the help of recurrent neural networks, the future status of a plant when considering both a binary (water stressed and not water stressed) and a four-status scenario. The obtained results are very good in terms of accuracy, precision, recall, F-measure, and of the resulting confusion matrices, and they suggest that the considered novel data and features coming from the bioristor, together with the used machine and deep learning models, can be successfully applied to real-world on-the-field smart irrigation scenarios in the future. As extension we have experimented drought training with CNN, Voting Classifier and it got high accuracy compare to LSTM.



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A PROJECT REPORT ON

**DETECTION OF STRESS IN HUMANS BY ANALYSING
SLEEP PATTERNS USING RANDOM FOREST
CLASSIFIER**

Major project submitted in partial fulfillment of the requirements for the
award of the degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

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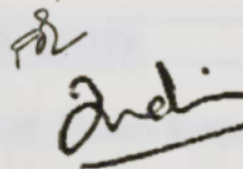
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ABSTRACT

The project "Detection of Stress in Humans by Analysing Sleep Patterns using Random Forest Classifier. Algorithm" presents a novel and effective approach to detect human stress levels by analysing their sleeping habits. Leveraging the powerful capabilities of Python programming language, the study employs the Random Forest Classifier algorithm, known for its versatility and accuracy in classification tasks. The primary objective of this research is to develop a reliable stress detection system that can provide valuable insights into individuals' stress levels, enabling timely interventions and promoting better mental health. The dataset used in this study is carefully curated and comprises various essential parameters related to both sleep patterns and stress levels.

The inclusion of these diverse parameters ensures a comprehensive analysis of sleep patterns and their correlation with stress levels. To achieve accurate stress detection, the Random Forest Classifier is chosen as the machine learning model due to its ability to handle complex data relationships, mitigate overfitting, and offer high predictive accuracy. The model is trained using the dataset, and its performance is evaluated on a separate test dataset to ensure generalization and unbiased assessment. The results of the experiments reveal a Training score of 100% and an impressive Test score of 97%, demonstrating the effectiveness and robustness of the proposed methodology.



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A PROJECT REPORT ON

**HYBRID CNN and HOG FEATURE EXTRACTION
FOR MULTI-CLASS SIGNATURE VERIFICATION**

Major project submitted in partial fulfillment of the requirements for
the award of the degree of

MASTER OF COMPUTER APPLICATIONS

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TABLE OF CONTENTS

ABSTRACT

The offline signature verification system's feature extraction stage is regarded as crucial and has a significant impact on how well these systems perform because the quantity and calibration of the features that are extracted determine how well these systems can distinguish between authentic and fake signatures. In this study, we introduced a hybrid method for extracting features from signature images, wherein a Convolutional Neural Network (CNN) and Histogram of Oriented Gradients (HOG) were used, to identify the key features. Finally, the CNN and HOG methods were combined. The experimental findings indicated that our suggested model executed satisfactorily in terms of efficiency and predictive ability, with accuracy of 99.98% on the ICDAR Dataset. This accuracy is deemed to be of high significance, particularly given that we checked skilled forged signatures that are more difficult to recognize than other forms of forged signatures like (simple or opposite).

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MAJOR PROJECT REPORT

ON

**COGNITIVE FEATURES FOR EARLY ALZHEIMER'S
DETECTION: ENSEMBLE MACHINE LEARNING APPROACH**

Major project submitted in partial fulfillment of the requirements for the

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ABSTRACT

Alzheimer's disease (AD) represents a pressing healthcare challenge, underscoring the critical need for early detection methodologies. This project introduces a novel approach leveraging ensemble machine learning techniques to enhance the accuracy of early-stage AD detection. Focusing on cognitive test data, our study presents an innovative ensemble method integrating Neighborhood Component Analysis and Correlation-based Filtration (NCA-F) for feature selection. Initially proposed an improved the top classifiers were selected for voting based on the performance results. The voting is performed using an adaptive weight matrix process. The output label of a model is multiplied by the F1 score and represented as weight. The results revealed an accuracy of 93.92% when using adaptive voting, which is better than the accuracy of 90.53% observed when using the traditional artificial neural network method. The proposed technique improved the accuracy of detecting AD at an early stage. Extending the work, we integrate three distinct models: a stacking classifier, convolutional neural networks (CNN), and a hybrid CNN-LSTM architecture. The stacking classifier aggregates predictions from multiple base classifiers, leveraging their collective intelligence to enhance performance. CNNs are adept at capturing spatial patterns in data and have shown promise in various medical imaging tasks. The hybrid CNN-LSTM model extends this capability by incorporating temporal dependencies, allowing for more nuanced analysis of longitudinal data, achieving an impressive accuracy of 98%.


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A PROJECT REPORT ON
**REAL TIME STOCK PREDICTION
USING ARIMA, LSTM AND LINEAR
REGRESSION**

Major project submitted in partial fulfillment of the
requirements for the award of the degree of

**MASTER OF COMPUTER
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ABSTRACT

This project investigates the application of ARIMA, LSTM, and Linear Regression algorithms for predicting stock prices in real-time across multiple stock exchanges, specifically NASDAQ, NYSE, and NSE. The stock data, spanning two years, was obtained from Yahoo Finance and Alpha Vantage APIs. The study aims to evaluate the accuracy of these models in forecasting stock prices, utilizing Root Mean Square Error (RMSE) as the primary evaluation metric. Stocks from the financial sector (JPM, PYPL, HDFC) and consumer staples sector (WMT, PEP, HINDUNILVR) were analyzed. The findings suggest that the ARIMA model outperforms LSTM and Linear Regression in terms of accuracy across different stock exchanges. The project highlights the potential of ARIMA in providing reliable predictions for financial decision-making, emphasizing its superior performance in various market conditions. The implementation is carried out using Python, employing libraries such as TensorFlow, Keras, and scikit-learn.

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MAJOR PROJECT REPORT
ON
DETECTION OF ANXIETY AND DEPRESSION IN WOMEN IN
PRENATAL PERIOD

Submitted in partial fulfilment for the award of the degree of
MASTER OF COMPUTER APPLICATIONS

By

MUNUKUTLA BALA BHASKARA ANJALI

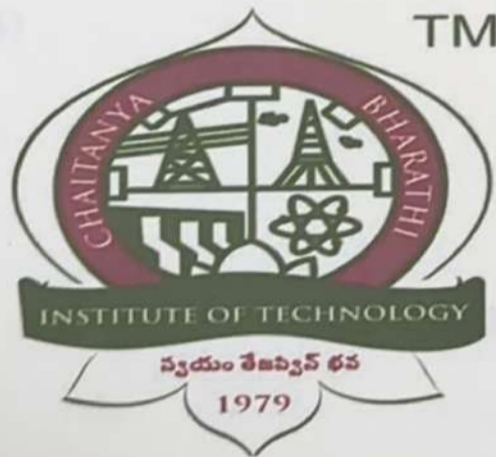
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ABSTRACT

The detection of anxiety and depression in pregnant women is a critical aspect of prenatal care, as these conditions can significantly impact both maternal and baby health. This study leverages the power of machine learning to develop a streamlined, efficient system for identifying these mental health conditions. By utilizing vast healthcare datasets, we aim to extract key features and optimize algorithms to address pertinent questions surrounding prenatal anxiety and depression.

Our proposed system employs the Random Forest Classifier, which offers several advantages over the Naive Bayes algorithm traditionally used in similar applications. The Random Forest Classifier's strengths include superior handling of complex data, the ability to identify and prioritize important predictive features, mitigation of overfitting, and enhanced robustness through ensemble learning techniques. These characteristics make it a promising approach for developing a reliable and effective detection system.

The ultimate goal of this study is to create a scalable, remote health prediction system capable of providing instant insights into the mental well-being of pregnant women. The system achieves impressive accuracy and precision rates of 99%, significantly outperforming traditional methods. This innovative, computer-based solution ensures swift and accurate assessments, replacing time-consuming manual detection processes. By offering rapid mental health evaluations, the system has the potential to enhance prenatal care and improve outcomes for both mothers and their babies.

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**A PROJECT REPORT ON
DETECTION OF FAKE PROFILES ON SOCIAL MEDIA
PLATFORMS USING MACHINE LEARNING**

Major project submitted in partial fulfilment of the requirements for the
award of the degree of

**MASTER OF COMPUTER APPLICATIONS
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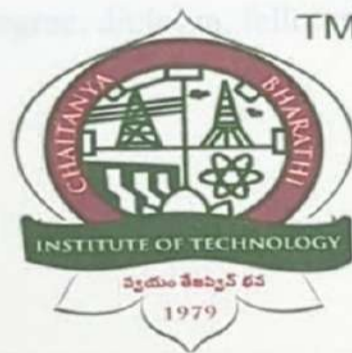
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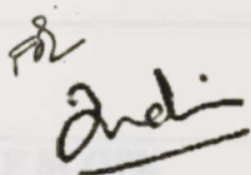
ABSTRACT

In an age where social media has become an integral part of our lives, the challenge of detecting fake accounts on platforms like Instagram has gained significant importance. This project, titled "Detection of fake profiles on social media platforms using Machine Learning," employs Python as its primary tool to tackle this problem. It leverages two powerful machine learning algorithms, the Random Forest Classifier and the Decision Tree Classifier, to accomplish this task.

The Random Forest Classifier demonstrates remarkable performance, achieving a 100% accuracy on the training dataset and an impressive 93% accuracy on the test dataset. Meanwhile, the Decision Tree Classifier exhibits its effectiveness with a training accuracy of 92% and a test accuracy of 92%.

The dataset employed in this project is composed of 576 records, each characterized by 12 distinct features. These features encompass critical aspects of Instagram profiles, including the presence of a profile picture, the ratio of numerical characters in usernames, the breakdown of full names into word tokens, the ratio of numerical characters in full names, the equality between usernames and full names, the length of user bios, the existence of external URLs, the privacy status of accounts, the number of posts, the count of followers, the number of accounts followed, and the ultimate classification of an account as "Fake" or "Not."

By harnessing the capabilities of Python and these advanced machine learning models, this project endeavors to provide a robust and efficient solution for the identification of fake Instagram accounts. In doing so, it contributes to the preservation of the platform's integrity and the security of its users.



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A PROJECT REPORT ON
REAL-TIME DROWSINESS DETECTION SYSTEM

Major project submitted in partial fulfillment of the requirements for the
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ABSTRACT

Drowsiness and fatigue are significant contributors to road accidents worldwide, resulting in numerous fatalities and injuries each year. This study aims to address this critical issue by developing and evaluating a Real-Time Drowsiness Detection System using machine learning techniques. The system leverages facial landmark detection algorithms, image processing techniques, and machine learning classifiers to analyze eye and mouth behavior, specifically using Eye Aspect Ratio (EAR) and Mouth Aspect Ratio (MAR) metrics, to accurately identify signs of drowsiness in drivers. The classifiers employed include modified Support Vector Machine (SVM), k-Nearest Neighbors (KNN), Decision Tree (DT), and Naive Bayes algorithms. Among these, the Decision Tree algorithm demonstrated the highest accuracy at 90.4%, followed by the modified SVM at 88%, KNN at 80.8%, and Naive Bayes at 69.17%. These findings underscore the potential of machine learning in effectively detecting driver drowsiness. The system's real-time monitoring capabilities and adaptive algorithms for individual variations ensure timely alerts to prevent accidents, thereby significantly enhancing road safety. The user-friendly interface further facilitates widespread adoption. This research highlights the effectiveness of integrating advanced machine learning techniques in drowsiness detection systems, offering a promising solution to mitigate the risks associated with drowsy driving.



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A PROJECT REPORT ON

**ADAPTING YOLO-V5X6 FOR OBJECT
DETECTION IN HARSH WEATHER CONDITION**

Major project submitted in partial fulfillment of the requirements
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MASTER OF COMPUTER APPLICATIONS

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This project aims to enhance the YOLO-v5x6 object detection model to effectively identify objects in adverse weather conditions such as rain, fog, snow, and low light. Through a combination of data augmentation, model adaptation, and architectural enhancements, the adapted model will improve its robustness and accuracy in challenging environments. By integrating the enhanced model into existing systems used in autonomous driving, surveillance, and logistics, the project seeks to enhance safety and operational efficiency. The development process involves thorough analysis, data collection, model training, and evaluation, culminating in the deployment of a reliable and scalable solution. This project contributes to the advancement of object detection technology, addressing critical challenges posed by adverse weather conditions and fostering innovation in autonomous systems.

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A PROJECT REPORT ON
IDENTIFICATION OF FLAME OR SMOKE WITH
ODCONVBS- YOLOv5s

Major project submitted in partial fulfillment of the requirements for the
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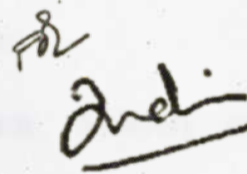
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ABSTRACT

Real-time and accurate detection of flame and smoke is a critical condition for decreasing fire loss. Traditional flame and smoke detection algorithms have several shortcomings such as poor accuracy, a high miss rate, low detection efficiency, and a low detection rate of small objects. We propose the detection algorithm of flame and smoke based on ODConvBS in YOLOv5s. Firstly, the ordinary convolutional blocks in the backbone network of YOLOv5s are replaced with ODConvBS to achieve the extraction of attentional features from the convolutional kernel. Secondly, Gnconv is introduced into Neck to improve the high-order spatial information extraction ability of the model. Then, the Shuffle Attention module is added at the end of the Neck to facilitate the fusion of different groups of features. Finally, the prediction part uses a SIOU loss function that can take into account the angle of the prediction frame vectors to accelerate the model convergence. When utilizing the self-made dataset of flame and smoke, the upgraded YOLOv5s model mAP grew. At the same time, the accuracy rate, the recall rate, and the detection speed increased respectively.



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A PROJECT REPORT ON

**Enhanced Road Damage detection through UAV image
analysis and Deep Learning approaches**

Major project submitted in partial fulfillment of the requirements for the
award of the degree of

MASTER OF COMPUTER APPLICATIONS

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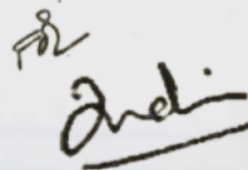
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ABSTRACT

Managing the maintenance of all the roads in a country is essential to its economic development. Traditionally, this has involved manual inspections using vehicles equipped with sensors to detect any damage. However, this process is slow, costly, and poses risks to human operators. To overcome these challenges, we use Unmanned Aerial Vehicles (UAVs). By using drones equipped with advanced imaging capabilities and employing deep learning algorithms, they can automate the detection of road damage. A Deep Learning Model with the help of YOLO and CNN is developed to detect road damages. The user can upload the image and can know the type of the damage. In this new project, I use YOLOv8 Object detection algorithm and CNN model for Road Damage Detection. New classes of damage are identified and predicted. Several road damage classes like Potholes, Longitudinal Cracks, Alligator Cracks, Repairs will be identified. Incorporating video prediction into the enhanced road damage detection model not only improves the accuracy and efficiency of damage assessment but also enables proactive and data-driven maintenance practices. The primary objectives include enhancing efficiency and accuracy of the developed system by using the state of art algorithms. A user-friendly frontend interface is developed with Streamlit for uploading media.

The future scope of this project envisions integrating the damage detection system with autonomous vehicles for on-the-go road health monitoring. Additionally, the project aims to expand its capabilities by diversifying the types of roads it can analyse and incorporating real-time functionalities for immediate response and repair coordination.



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A MAJOR PROJECT REPORT ON

ANPR -BASED AUTOMATIC TOLL TAX COLLECTION SYSTEM

Major project submitted in partial fulfillment of the requirements for the
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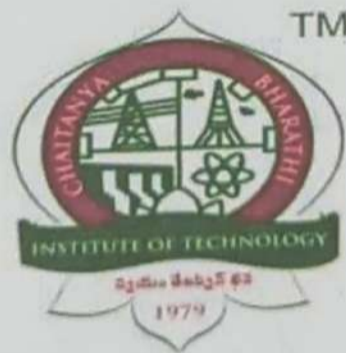
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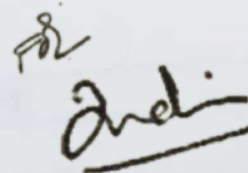
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ABSTRACT

The " Toll System using Automatic Number Plate Detection" is a user-centric project designed to streamline toll collection processes at checkpoints. It features two distinct user roles: Toll Booth Admin and User. Users can create accounts by providing their vehicle details and depositing funds into their digital wallets. When users visit toll booths, Toll Booth Admins upload vehicle images, and the system automatically detects the number plate, deducting the appropriate toll amount from the user's wallet. Error alerts are triggered if wallet balances are insufficient or accounts do not exist. Toll Booth Admins can log in with the username and password 'admin,' upload vehicle images, and view payment records. This project aims to enhance user convenience and automate toll collection while providing administrative tools for efficient management. The " Toll System using Automatic Number Plate Detection" is a user-centric project designed to streamline toll collection processes at checkpoints. It features two distinct user roles: Toll Booth Admin and User. Users can create accounts by providing their vehicle details and depositing funds into their digital wallets. When users visit toll booths, Toll Booth Admins upload vehicle images, and the system automatically detects the number plate, deducting the appropriate toll amount from the user's wallet. Error alerts are triggered if wallet balances are insufficient or accounts do not exist. Toll Booth Admins can log in with the username and password 'admin,' upload vehicle images, and view payment records. This project aims to enhance user convenience and automate toll collection while providing administrative tools for efficient management.



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A PROJECT REPORT ON
SOLAR CELL SURFACE DEFECT DETECTION SYSTEM

Major project submitted in partial fulfillment of the requirements for the
award of the degree of

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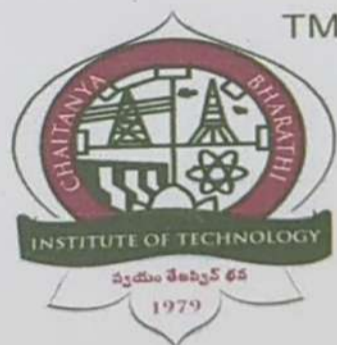
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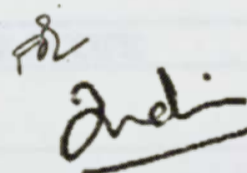
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ABSTRACT

Solar cell defects significantly impact the efficiency and reliability of solar energy systems, necessitating precise and efficient detection methods. In this project, we focus on enhancing solar cell defect detection using advanced deep learning algorithms. We initially propose an improved YOLOv5 model tailored to handle the complex background, variable defect morphology, and significant scale differences characteristic of solar cell images. Key enhancements include adding a tiny defect prediction head to improve detection accuracy across different scales and utilizing data augmentation techniques such as Mosaic and MixUp fusion. Our experimental results demonstrate that the improved YOLOv5 algorithm achieves an mAP of 89.64% on the solar cell EL image dataset, which is a 7.85% improvement over the original YOLO V5 algorithm.

Extending this work, we train and evaluate the same dataset using the more advanced YOLOv6 algorithm, achieving superior prediction accuracy. Comparative analysis with Faster R-CNN, YOLOv5, and YOLOv6 (incorporating VGG16) reveals that YOLOv6 outperforms in defect detection, achieving an impressive accuracy of 98%. Performance metrics such as accuracy, precision, recall, and F1 score are computed to thoroughly assess each algorithm's efficacy. Additionally, the integration of user-friendly interfaces is explored to facilitate practical deployment and usage of the models. This project aims to significantly enhance defect detection methodologies in the solar energy sector, contributing to more efficient and reliable solar cell quality assurance.



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A PROJECT REPORT ON

**PHISHCATCHER: A CLIENT SIDE DEFENSE
MECHANISM AGAINST WEB SPOOFING ATTACKS**

Major project submitted in partial fulfillment of the requirements for the
award of the degree of

**MASTER OF COMPUTER APPLICATIONS
(2022-2024)**

By

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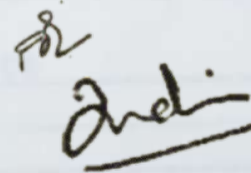
CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)

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ABSTRACT

Cyber security confronts a tremendous challenge of maintaining the confidentiality and integrity of user's private information such as password and PIN code. Billions of users are exposed daily to fake login pages requesting secret information. There are many ways to trick a user to visit a web page such as, phishing mails, tempting advertisements, click-jacking, malware, SQL injection, session hijacking, man-in-the-middle, denial of service and cross-site scripting attacks. Web spoofing or phishing is an electronic trick in which the attacker constructs a malicious copy of a legitimate web page and request users' private information such as password. To counter such exploits, researchers have proposed several security strategies but they face latency and accuracy issues. To overcome such issues, we propose and develop client-side defence mechanism based on machine learning techniques to detect spoofed web pages and protect users from phishing attacks. As a proof of concept, a Google Chrome extension dubbed as PhishCatcher, is developed that implements our machine learning algorithm that classifies a URL as suspicious or trustful. The algorithm takes four different types of web features as input and then random forest classifier decides whether a login web page is spoofed or not. To assess the accuracy and precision of the extension, multiple experiments were carried on real web applications. The experimental results show remarkable accuracy of 98.5% and precision as 98.5% from the trials performed on 400 classified phished and 400 legitimate URLs. Furthermore, to measure the latency of our tool, we performed experiments over forty phished URLs. Similar to Random Forest we have another advanced algorithm called XGBOOST which will filter dataset by using trees of forest or group of estimators so it can optimized features better than Random Forest and can yield high accuracy so extension we have added XGBOOST algorithm and stacking classifier.



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**A PROJECT REPORT ON
UNVEILING THREATS IN THE IOT: ANOMALY
DETECTION FOR ATTACK CLASSIFICATION**

**Major project submitted in partial fulfillment of the requirements for
the award of the degree of**

**MASTER OF COMPUTER APPLICATIONS
(2022-2024)**

By

SAMBA MANISHA

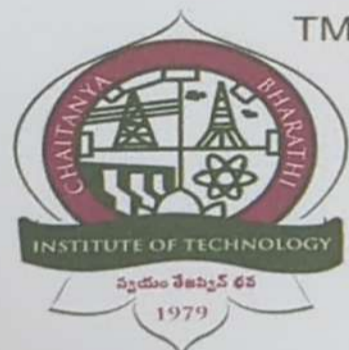
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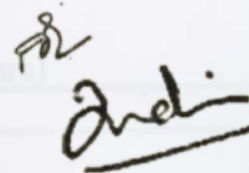
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ABSTRACT

The rapid proliferation of Internet of Things (IoT) devices has significantly increased the complexity and vulnerability of modern networks, necessitating robust security mechanisms to protect against cyber threats. This project aims to enhance anomaly detection and attack classification in IoT environments by leveraging advanced machine learning techniques. Building upon traditional methods such as Random Forest (RF) and Support Vector Machine (SVM), this study introduces ensemble methods, specifically stacking and voting classifiers, to improve detection accuracy and robustness. Utilizing the NSL-KDD dataset, a well-known benchmark for intrusion detection, the project demonstrates the superior performance of these advanced classifiers in identifying and categorizing network intrusions. Experimental results show that the ensemble methods significantly outperform baseline models in terms of accuracy, precision, recall, and F1 score, thus offering a more reliable and effective solution for securing IoT networks. The findings of this research contribute to the development of more sophisticated and resilient security measures, essential for safeguarding the rapidly expanding IoT landscape. This shows that the proposed method ensemble learning stacking and voting classifier has higher accuracy than previous literatures, which is very promising. The posted Stacking and Voting classifier are very encouraging recall and precision as well.



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A PROJECT REPORT ON

TRANSFORMATIVE WAVELET APPROACH FOR AUTOMATED SPEECH RECOGNITION IN INDIAN LANGUAGES

Major project submitted in partial fulfillment of the requirements for the award
of the degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

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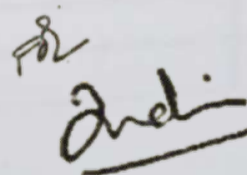
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ABSTRACT

In this project, we address the challenge of spelling correction, focusing on finding the correct word for misspelled words in a text. Unlike traditional methods that rely solely on dictionary lookups, our approach leverages a convolutional neural network trained on dictionary words to act as an oracle. When presented with a misspelled word, this oracle suggests candidate dictionary words based on learned patterns. Additionally, we employ a character-level bigram model to generate alternative query words from misspelled inputs, which are then fed into the trained network to obtain more candidate dictionary words. To evaluate our method's effectiveness, we utilize randomly distorted dictionary words as test cases. Results demonstrate that our trained network achieves a satisfactory level of accuracy, with the incorporation of generated query words significantly improving performance compared to relying solely on the original misspelled word.

Our project, addresses the pressing need for efficient speech recognition technology in Indian languages, where such systems are currently lacking. The primary goal of the project is to convert speech signals into corresponding text representations, that may enable applications such as voice-activated commands, assistive devices, and chatbots. By leveraging the Wavelet Transformer architecture, our proposed system offers a novel solution tailored to the linguistic characteristics of Indian languages, bridging the technological gap and facilitating seamless communication through speech-to-text conversion.



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A PROJECT REPORT ON
Classifying Soil Surface Texture from RGB Images
Captured in an Uncontrolled Field Environment

Major project submitted in partial fulfillment of the requirements for the
award of the degree of

MASTER OF COMPUTER APPLICATIONS
(2022-2024)

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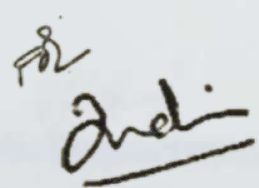
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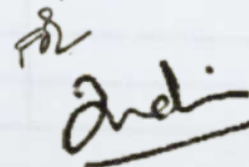



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ABSTRACT

Soil surface texture classification is a critical aspect of agriculture and soil science that affects various soil properties, such as water-holding capacity and soil nutrient retention. However, existing methods for soil texture classification rely on soil images taken under controlled conditions, which are not scalable for high spatiotemporal mapping of soil texture and fail to reflect real-world challenges and variations. To overcome these limitations, we propose a novel, scalable, and high spatial resolution soil surface texture classification process that employs image processing, texture-enhancing filters, and a Convolutional Neural Network (CNN) to classify soil images captured under Uncontrolled Field Conditions (UFC). The proposed process involves a series of steps for improving soil image analysis. Initially, image segmentation is utilized to eliminate non-soil pixels and prepare the images for further processing. Next, the segmented output is divided into smaller tiles to isolate relevant soil pixels. Then, high-frequency filtering is introduced to enhance the texture of the images. Our research has shown that the Gabor filter is more effective than Local Binary Patterns (LBP) for this purpose. By creating four distinct Gabor filters, we can enhance specific, hidden patterns within the soil images. Finally, the split and enhanced images are used to train CNN classifiers for optimal analysis. We evaluate the performance of the proposed framework using different metrics and compare it to existing state-of-the-art soil texture classification frameworks. Our proposed soil texture classification process improves performance. We employed various CNN architectures in our proposed process for comparison purposes.



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A PROJECT REPORT ON

**REVOLUTIONIZING SAFETY STANDARDS:
YOLO-M EMPOWERED HELMET
DETECTION**

Major project submitted in partial fulfillment of the requirements for the
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TABLE ABSTRACT

Construction accidents have become more common in recent years. The safety rules for construction workers are brought into sharp light. Wearing safety helmets is one of the most important factors for protecting the safety of construction workers, and detecting the use of safety helmets has become required. The existing helmet-wearing detection algorithm's weaknesses such as many parameters, substantial detection interferences, and poor detection accuracy. We propose a new helmet wearing detection model called YOLO-M, which uses MobileNetv3 as the backbone network for feature extraction, which can reduce the number of model parameters and model size. A residual edge for feature fusion, and at last, by changing the connection between CAM and SAM, a new attention module BiCAM is designed. The experiments show that YOLO-M has a higher detection accuracy and faster detection speed than other models, while also reducing the number of model parameters.


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A PROJECT REPORT ON
**SHIP DETECTION BASED ON FASTER R-CNN
USING RANGE-COMPRESSED AIRBORNE
RADAR DATA**

Major project submitted in partial fulfilment of the requirements

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MASTER OF COMPUTER APPLICATIONS

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Table Of Contents

ABSTRACT

Near real-time ship monitoring is crucial for ensuring safety and security at sea. Established ship monitoring systems are the automatic identification system (AIS) and marine radars. However, not all ships are committed to carry an AIS transponder and the marine radars suffer from limited visibility. For these reasons, airborne radars can be used as an additional and supportive sensor for ship monitoring, especially on the open sea. State-of-the-art algorithms for ship detection in radar imagery are based on constant false alarm rate (CFAR). Such algorithms are pixel-based and therefore it can be challenging in practice to achieve near real-time detection. This letter presents two object-oriented ship detectors based on the faster region-based convolutional neural network (R-CNN). The first detector operates in time domain and the second detector operates in Doppler domain of airborne Range-Compressed (RC) radar data patches. The Faster R-CNN models are trained on thousands of real X-band airborne RC radar data patches containing several ship signals. The robustness of the proposed object-oriented ship detectors is tested on multiple scenarios, showing high recall performance of the models even in very dense multitarget scenarios in the complex inshore environment of the North Sea

Dr.
Aneli

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A PROJECT REPORT ON
PLANTDET: A DEEP ENSEMBLE MODEL FOR EARLY
DETECTION OF RICE AND BETEL LEAF DISEASES

Major project submitted in partial fulfilment of the requirements for
the award of the degree of

MASTER OF COMPUTER APPLICATIONS

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ABSTRACT

All living things should be extremely worried about plant disease. Early detection enables farmers to take the appropriate action to effectively enhance output and treat the disease. The five most prevalent rice leaf diseases—bacterial leaf blight, brown spot, leaf blast, leaf scald, and narrow brown spot—as well as two types of betel leaf—healthy and unhealthy class have been the focus of our study. The paper proposes a new deep ensemble model, called PlantDet, based on InceptionResNetV2, EfficientNetV2L, and Xception, which solves underfitting problems and leverages nourished performances simultaneously for scarce datasets of the sparse number of different background image datasets. The model integrates efficient data augmentation, preprocessing, Global Average Pooling layer, Dropout mechanism, L2 regularizers, PReLU activation function, Batch Normalization layers, and more Dense layers that make the model more robust compared to all existing models and help to handle underfitting and overfitting problems while maintaining high performance. The PlantDet exceeds the previous state-of-art model for the Rice Leaf dataset with an good Accuracy, Precision, Recall, F1 and Specificity. In addition, for the Betel Leaf dataset, PlantDet also surpassed all existing base models, including several robust ensemble models. Finally, Grad-CAM and Score-CAM have been accomplished with the Xception method to explain the model performances particularly to elaborate how the Deep Learning (DL) models work for this complex dataset. Score-CAM slightly outperformed Grad-CAM++ in terms of localizing the predicted area.

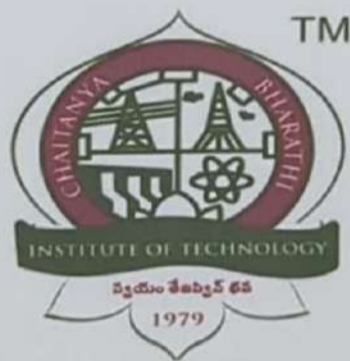

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**A PROJECT REPORT ON
ENHANCING ACCURACY OF LANDING SCENE
RECOGNITION FOR
DRONES USING RANDOM FOREST**

Major project submitted in partial fulfillment of the requirements for the award
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MASTER OF COMPUTER APPLICATIONS
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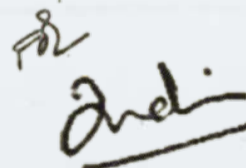
Chaitanya Bharathi Institute of Technology
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ABSTRACT

In this paper, we study autonomous landing scene recognition with knowledge transfer for drones. Considering the difficulties in aerial remote sensing, especially that some scenes are extremely similar, or the same scene has different representations in different altitudes, we employ a deep convolutional neural network (CNN) based on knowledge transfer and fine-tuning to solve the problem. Then, LandingScenes-7 dataset is established and divided into seven classes. Moreover, there is still a novelty detection problem in the classifier, and we address this by excluding other landing scenes using the approach of thresholding in the prediction stage. We employ the transfer learning method based on ResNeXt-50 backbone with the adaptive momentum (ADAM) optimization algorithm. We also compare ResNet-50 backbone and the momentum stochastic gradient descent (SGD) optimizer. Experiment results show that ResNext-50 based on the ADAM optimization algorithm has better performance. With a pre-trained model and fine-tuning, it can achieve 97.8450% top-1 accuracy on the LandingScenes-7 dataset, paving the way for drones to autonomously learn landing scenes. In propose paper author has not used any hybrid or ensemble model to further enhance landing accuracy so as extension we are developing Hybrid Ensemble Random Forest model which will extract Optimize Features from trained ResNext50 and then further retrained optimized features with Ensemble Random Forest model and this hybrid model will improve accuracy.



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MAJOR PROJECT REPORT
ON
FORECASTING FUTURE PARTICULATE MATTER
CONCENTRATIONS: A MODEL FOR AIR QUALITY
PREDICTION ACROSS INDIAN CITIES

Major project submitted in partial fulfillment of the requirements for the
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ABSTRACT

Air pollution, particularly the concentration of particulate matter (PM), poses a significant threat to public health, environment, and economic development, especially in urban areas across India. In this study, we propose a robust model for forecasting future PM concentrations, tailored specifically to the diverse urban landscapes of Indian cities. Leveraging historical data on PM levels, meteorological variables, and socio-economic factors, our model integrates advanced machine learning algorithms to predict PM concentrations with high accuracy and spatial resolution. By accounting for the unique characteristics of each city, such as population density, industrial activities, and geographic features, our model offers tailored insights and forecasts to support proactive air quality management strategies. The proposed forecasting framework not only aids in mitigating health risks associated with air pollution but also facilitates evidence-based policy-making and urban planning for sustainable development.



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A PROJECT REPORT ON

**MEDICAL INSURANCE PREMIUM
PREDICTION USING ADVANCED
MACHINE LEARNING TECHNIQUES**

Major project submitted in partial fulfillment of the requirements for the
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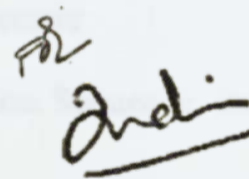
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ABSTRACT

TABLE OF CONTENTS

The increasing necessity of healthcare and the impact of the COVID-19 pandemic have underscored the critical importance of health insurance as a financial safeguard. As healthcare costs continue to rise globally, accurately predicting health insurance premiums has become essential for both individuals and insurance companies. This study presents a robust approach to predicting individual health insurance costs using advanced machine learning techniques. The methods employed include Linear Regression, Ridge Regression, Lasso Regression, Elastic Net, Decision Tree, Random Forest, Gradient Boosting, XGBoost, and a Stacking Model. These models offer varying strengths in handling the complexities and voluminous data typical in the health insurance domain. By leveraging these machine learning models, our approach aims to enhance the precision and efficiency of premium predictions, benefiting customers with more accurate cost assessments and aiding insurance companies in optimizing policy offerings. The proposed methodology not only facilitates better financial planning for individuals but also streamlines data processing for insurers, ultimately contributing to more informed decision-making in the insurance industry.



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A PROJECT REPORT ON
Securing IoT Networks: Advanced Cyber Threat Detection
Using Deep Learning

Major project submitted in partial fulfillment of the requirements for
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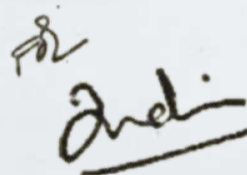
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ABSTRACT

A computer network may be impacted by malicious software, computer viruses, and other hostile attacks. A crucial element of network security is intrusion detection, which is an active defensive system. Traditional intrusion detection systems suffer from problems including poor accuracy, poor detection, a high rate of false positives, and an inability to handle novel forms of intrusions. To address these issues, we propose a deep learning-based novel method to detect cybersecurity vulnerabilities and breaches in cyber-physical systems. The proposed framework contrasts the unsupervised and deep learning-based discriminative approaches. We present a generative adversarial network using CNN+LSTM to detect cyber threats in IoT-driven IICs networks. The results demonstrate a performance increase in terms of accuracy, reliability, and efficiency in detecting all types of attacks. The output of well-known state-of-the-art DL classifiers achieved the highest true rate (TNR) and highest detection rate (HDR) when detecting the following attacks such as BruteForceXXS, BruteForceWEB, DoS_Hulk_Attack, and DOS_LOIC_HTTP_Attack on the three data sets namely NSL-KDD, KDDCup99, and UNSW-NB15 datasets. It also maintained the confidentiality and integrity of users' and systems' sensitive information during the training and testing phases.



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A PROJECT REPORT ON
**CLIENT-SIDE SPEECH TO TEXT TRANSCRIPTION AND
TRANSLATION IN A WEB APPLICATION USING
OPENAI'S WHISPER MODEL AND TRANSFORMERS-JS**

Major project submitted in partial fulfillment of the requirements for
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ABSTRACT

This project presents a web application that leverages the power of OpenAI's Whisper model and transformers-js to enable real-time client-side speech-to-text transcription and text translation. The application utilizes the Whisper model's state-of-the-art speech recognition capabilities to transcribe spoken language into text, and subsequently employs transformers-js to translate the transcribed text into multiple languages. The application allows users to upload audio files or record audio directly, which is then transcribed into text using the Whisper model. The transcribed text is subsequently translated into multiple languages using transformers-js. By performing these tasks entirely on the client-side, the application ensures low latency, high accuracy, and robust security. The project demonstrates a seamless integration of AI-powered speech recognition and machine translation, paving the way for innovative applications in language learning, international communication, and accessibility.

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A PROJECT REPORT ON
**WEB APPLICATION FOR TRAINING CNN MODELS
FOR IMAGE CLASSIFICATION**

Major project submitted in partial fulfillment of the requirements for the award of the
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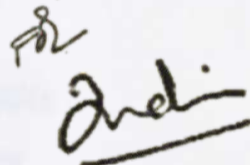
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Abstract

This study focuses on training Convolutional Neural Network (CNN) models for image classification within the context of a web application. The research explores various CNN architectures, including VGG, ResNet, and Inception, and investigates the impact of transfer learning on model performance. A diverse dataset is curated, and data augmentation techniques are employed to enhance model robustness. The web application is designed for user-friendly image classification, integrating the trained CNN model. Evaluation metrics such as accuracy, precision, recall, and F1-score are utilized to assess model effectiveness. The findings contribute to the development of a reliable and efficient image classification web application, highlighting the potential of CNNs in real-world, web-based environments.



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A PROJECT REPORT ON

Image Steganography In Cyber Security (With Secret Key And XOR Function)

Major project submitted in partial fulfillment of the requirements for the award of the degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

by

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A PROJECT REPORT ON
**DETECTION OF PEST IN PEANUT CROP LEAF USING DEEP
LEARNING**

Major project submitted in partial fulfilment of the requirements for the
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ABSTRACT

In recent years, significant advancements in image classification and identification tasks have been driven by the rapid development of Convolutional Neural Networks (CNNs). Although Vision Transformers (ViTs) have demonstrated superior performance in image classification compared to traditional machine learning and CNN methods, this study introduces an enhanced CNN-based model specifically designed for pest recognition, segmentation, and classification. Our proposed model leverages a double-layer CNN encoder to incorporate two branch segment representations, effectively managing token chunks of varying sizes and computational complexities. By integrating multiple attention mechanisms, the model enhances overall image processing capabilities. We evaluate our approach using publicly available pest databases that affect peanut and other crops. Experimental results indicate that our CNN model exhibits distinct advantages and outperforms state-of-the-art algorithms in pest image prediction, achieving an impressive accuracy rate of 99.25%.

Additionally, the integration of advanced attention mechanisms facilitates better feature refinement and contextual understanding, further enhancing the model's accuracy and robustness. By dynamically adjusting the focus on different parts of the image, these attention processes help the model to emphasize critical regions and mitigate the impact of irrelevant background information. Our extensive experiments on pest datasets underscore the efficacy of this approach, demonstrating that the model not only achieves high accuracy but also offers reliable performance across different types of pest images. This makes it a valuable tool for agricultural applications, aiding in the early detection and management of pest infestations to protect crop yields and ensure food security.

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A PROJECT REPORT ON
FAKE NEWS DETECTION IN SOCIAL MEDIA

Major project submitted in partial fulfillment of the requirements for the
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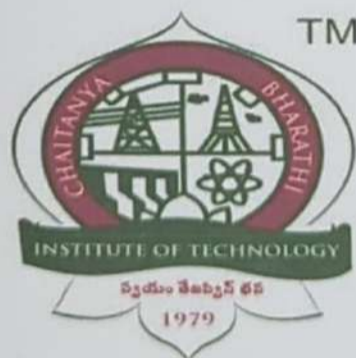
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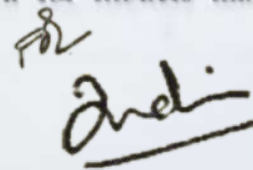
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ABSTRACT

Fake news detection on social media has emerged as a critical area of research in the era of digital communication, where the rapid dissemination of information can have profound societal impacts. Leveraging machine learning (ML) techniques for this task has shown considerable promise due to their ability to analyze vast amounts of data and identify patterns indicative of misinformation. This paper explores various ML methodologies for detecting fake news, focusing on data preprocessing, feature extraction, and classification algorithms. Initially, data preprocessing is essential for handling the noisy and unstructured nature of social media content. This includes text cleaning, tokenization, stemming, and removal of stop words to ensure the data is in a suitable format for analysis. Feature extraction techniques such as Term Frequency-Inverse Document Frequency (TF-IDF), word embeddings (Word2Vec, GloVe), and more advanced methods like BERT (Bidirectional Encoder Representations from Transformers) are employed to transform text data into meaningful numerical representations. Classification algorithms form the core of the fake news detection process. Traditional ML algorithms such as Naive Bayes, Support Vector Machines (SVM), and Random Forests have been widely used due to their simplicity and effectiveness. However, deep learning models, particularly Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs), have gained popularity for their superior performance in capturing complex patterns in textual data. Moreover, ensemble methods, which combine multiple models to improve accuracy and robustness, are also discussed. Techniques such as bagging, boosting, and stacking are explored for their potential to enhance the detection of fake news. Evaluation metrics like accuracy, precision, recall, F1-score, and Area Under the Receiver Operating Characteristic Curve (AUC-ROC) are utilized to assess the performance of these models comprehensively. The paper also addresses the challenges in fake news detection, including the dynamic and evolving nature of misinformation, the scarcity of labeled datasets, and the need for models that can generalize across different domains and languages.



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A PROJECT REPORT ON

ENHANCING TUBERCULOSIS DETECTION IN CHEST X-RAYS USING ATTENTION MODULES

Major project submitted in partial fulfillment of the requirements for the award
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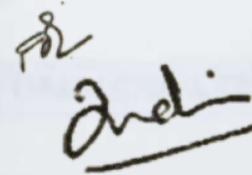


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Abstract

Tuberculosis (TB) remains a critical global health challenge, necessitating early and precise diagnosis for effective treatment and containment. Existing diagnostic systems, primarily employing Artificial Neural Networks (ANN), often struggle to capture essential spatial and contextual information. This project evaluates the performance of a DenseNet-121 architecture integrated with a Convolutional Block Attention Module (CBAM) for TB diagnosis using X-ray images. DenseNet-121 is known for its dense connectivity, enabling effective feature reuse and deep extraction, while CBAM enhances the model's focus through channel and spatial attention mechanisms, thereby identifying crucial features and their locations more accurately. The integrated model aims to leverage these advanced capabilities to enhance diagnostic accuracy and efficacy. Experimental results demonstrate that the DenseNet-121 with CBAM significantly improves TB detection compared to traditional ANN-based systems, achieving higher accuracy, sensitivity, and specificity. The model's ability to reduce false negatives and false positives is particularly noteworthy, as it ensures more reliable TB diagnosis. These findings highlight the importance of advanced neural network architectures and attention mechanisms in medical image analysis. The study underscores the potential of innovative AI-driven diagnostic tools in addressing global health challenges, suggesting that such integrated models could be further explored and applied to other medical conditions and imaging modalities, thereby advancing the field of AI in healthcare and contributing to better patient outcomes worldwide.



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A PROJECT REPORT ON
**DECENTRALIZED FLOOD FORECASTING:
LEVERAGING FEDERATED LEARNING FOR
ENHANCED PREDICTION ACCURACY**

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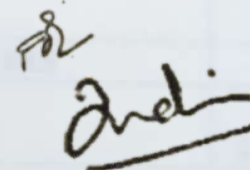
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ABSTRACT

Floods are one of the most common natural disasters that occur frequently causing massive damage to property, agriculture, economy and life. Flood prediction offers a huge challenge for researchers struggling to predict floods since long time. In this article, flood forecasting model using federated learning technique has been proposed. Federated Learning is the most advanced technique of machine learning (ML) that guarantees data privacy, ensures data availability, promises data security, and handles network latency trials inherent in prediction of floods by prohibiting data to be transferred over the network for model training. Federated Learning technique urges for onsite training of local data models, and focuses on transmission of these local models on the network instead of sending huge data set towards central server for local model aggregation and training of global data model at the central server. In this article, the proposed model integrates locally trained models of eighteen clients, investigates at which station flooding is about to happen and generates flood alert towards a specific client with five days lead time. A local feedforward neural network (FFNN) model is trained at the client station where the flood has been expected. Flood forecasting module of local FFNN model predicts the expected water level by taking multiple regional parameters as input. The dataset of five different rivers and barrages has been collected from 2015 to 2021 considering four aspects including snow melting, rainfall-runoff, flow routing and hydrodynamics. The proposed flood forecasting model has successfully predicted previous floods happened in the selected zone during 2010 to 2015 with 84 % accuracy.

As extension we used advanced algorithms like Convolution2D Neural Network which gain popularity in all domains for its accurate and successful prediction accuracy of more than 90%. So to enhance accuracy we have used CNN2D as extension for flood forecasting.



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A PROJECT REPORT ON
UTILIZATION OF MACHINE LEARNING
FOR EARLY ANTICIPATION OF STROKES

Major project submitted in partial fulfillment of the requirements for the
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ABSTRACT

Stroke is a dangerous medical disorder that occurs when blood flow to the brain is disrupted, resulting in neurological impairment. It is a big worldwide threat with serious health and economic implications. It remains a leading cause of disability and death globally, making the development of reliable predictive tools critical for early intervention and prevention. This project, titled "Utilization of Machine Learning for Early Anticipation of Strokes," explores the potential of machine learning algorithms to enhance stroke risk prediction. Utilizing algorithms such as decision trees, random forests, logistic regression, and k-nearest neighbors (KNN), the project aims to provide accurate and timely predictions of stroke risk.

The primary objective is to shift from reactive to proactive healthcare by identifying individuals at high risk of stroke before symptoms appear. This early anticipation facilitates timely medical intervention, potentially reducing the incidence and severity of strokes. Additionally, the system can provide actionable insights and recommendations for lifestyle modifications and preventive measures tailored to each individual. By leveraging machine learning for stroke prediction, this project demonstrates significant potential to transform stroke prevention strategies. It underscores the importance of data-driven approaches in healthcare, aiming to enhance patient outcomes through early detection and personalized care. The integration of advanced data sources and continuous model improvements ensures that the system remains robust, accurate, and relevant, contributing to the overall goal of reducing the global burden of stroke.


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A PROJECT REPORT
ON
OPTIMIZED TRANSFER LEARNING BASED DEMENTIA PREDICTION SYSTEM
FOR REHABILITATION THERAPY PLANNING

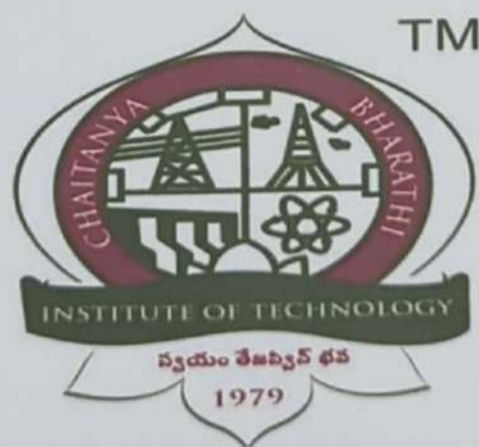
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ABSTRACT

Dementia is a neurodegenerative disease that causes a progressive decline in memory, thinking, and the ability to execute daily activities. Emotional disorders, language disorders, and reduced mobility are additional prevalent symptoms; however, self-consciousness is unaffected. Dementia is irreversible, and medicine can only delay the degeneration, not stop it. Nonetheless, if dementia could be foretold, its onset could be avoided. Thus, we propose a revolutionary transfer-learning machine-learning model to predict dementia from magnetic resonance imaging data. In training, k-fold cross-validation and various parameter optimization algorithms were used to increase prediction accuracy. Synthetic minority oversampling was used for data augmentation. The final model achieved good accuracy, superior to that of competing methods on the same data set. This study's model facilitates the early diagnosis of dementia, which is key to arresting neurological deterioration from the disease, and is useful for under served regions where many do not have access to a human physician. In the future, the proposed system can be used to plan rehabilitation therapy programs for patients.

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A PROJECT REPORT ON
ENHANCING HR EFFICIENCY

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ABSTRACT

Today's rapidly evolving technological landscape, the demand for skilled professionals is on the rise, presenting numerous employment opportunities across various sectors. As a consequence, the submission of resumes has become the quintessential step in the job application process, serving as a comprehensive snapshot of an individual's accomplishments and competencies across diverse domains. However, the influx of resumes inundating multinational organizations poses a significant challenge in efficiently identifying suitable candidates for specific roles.

Traditional methods of resume screening, primarily reliant on manual review, are not only labor-intensive but also susceptible to human errors. Moreover, the inherent limitations of human capacity hinder continuous and consistent performance, leading to decreased efficiency over time. Consequently, there is a pressing need for innovative solutions that streamline the resume screening process while ensuring accuracy and effectiveness.

To address this challenge, we propose a novel system that leverages the power of machine learning. By employing advanced algorithms and natural language processing techniques, our system automates the extraction and analysis of key information from resumes, such as skill sets, qualifications, and experience. This automated screening process eliminates the need for manual intervention, significantly reducing the time and resources required for candidate evaluation.

Central to our approach is the concept of targeted skill matching. Our system is designed to seamlessly align the skill requirements specified by organizations with the skill sets possessed by job applicants. Through sophisticated pattern recognition and semantic analysis, our machine learning model identifies relevant keywords, phrases, and contextual cues within resumes, effectively matching candidates to job criteria with precision and accuracy.

By harnessing the capabilities of machine learning for recruiting, our system not only accelerates the resume screening process but also enhances its efficacy. With its ability to handle large volumes of data rapidly and consistently, our solution ensures that organizations can identify and shortlist qualified candidates in a timely manner, thereby optimizing the recruitment workflow and driving operational efficiency.

In summary, our project represents a pioneering effort to revolutionize the recruitment process by

**A PROJECT REPORT ON
VEHICLE DETECTION AND COUNTING**

Major project submitted in partial fulfillment of the requirements for the
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**MASTER OF COMPUTER APPLICATIONS
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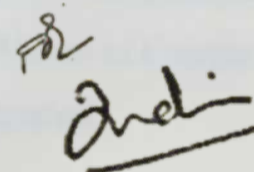
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ABSTRACT

Vehicle detection and counting is a crucial aspect of modern traffic management systems. This project focuses on developing an efficient and accurate method for detecting and counting vehicles using computer vision and machine learning techniques. The system employs a combination of convolutional neural networks (CNNs) for object detection and tracking algorithms to monitor vehicle movements in real-time. By processing video feeds from traffic cameras, the system can identify and classify different types of vehicles, track their trajectories, and count their numbers as they pass through designated areas. The implementation involves training the detection model on a labeled dataset of various vehicle images, followed by finetuning to enhance accuracy under different lighting and weather conditions. The counting mechanism leverages motion analysis and spatial filtering to ensure precise vehicle counts, even in high-density traffic scenarios. The results demonstrate significant improvements in detection accuracy and counting reliability compared to traditional methods, providing a robust solution for traffic monitoring and management applications.

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A PROJECT REPORT ON
UTILIZING A DEEP LEARNING ENSEMBLE
APPROACH WITH DATA RESAMPLING FOR
DETECTING CREDIT CARD FRAUDS

Major project submitted in partial fulfillment of the
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Abstract

With the continuous growth of e-commerce and the widespread use of credit cards, the threat of credit card fraud has become increasingly significant, impacting both financial institutions and consumers. This research proposes a novel approach to enhance credit card fraud detection by leveraging a deep learning-based stacking ensemble method integrated with data resampling techniques. The stacking ensemble framework incorporates LSTM and GRU neural networks as base learners, with an MLP serving as the meta-learner. Additionally, data resampling is facilitated through the hybrid SMOTE-ENN method. The effectiveness of the proposed approach is demonstrated through achieved sensitivity, specificity, and AUC values of 1.000, 0.997, and 1.000, respectively, surpassing several baseline classifiers including AdaBoost, random forest, MLP, LSTM, and GRU. Comparative analysis with existing literature showcases superior performance. Future endeavors will focus on enhancing model diversity by integrating different training methods, such as combining LSTM with random forest, logistic regression, or SVM. Furthermore, upcoming research will explore feature importance and risk factor analysis, thereby providing a comprehensive framework for addressing current challenges and paving the way for further advancements in credit card fraud detection.



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A PROJECT REPORT
ON
A HYBRID MACHINE LEARNING APPROACH FOR
PHISHING URL DETECTION

Major project submitted in partial fulfilment of the requirements for the award
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ABSTRACT

Phishing attacks pose a serious threat to cybersecurity by tricking users into revealing personal and financial information through deceptive emails and social media messages. To combat this, we have developed an innovative method for detecting phishing attacks using advanced machine learning techniques, specifically focusing on analysing URLs. Our approach integrates Natural Language Processing (NLP) ensemble methods with hybrid machine learning models. We start by utilizing a comprehensive dataset that contains both phishing (malicious) and legitimate (safe) URLs. The raw URL data undergoes preprocessing through NLP techniques, which helps in understanding the content and context of the URLs. This involves breaking down the URLs into meaningful components (tokenization) and reducing words to their base forms (stemming), which prepares the data for more effective analysis.

Next, we extract relevant features from the URLs that can help distinguish phishing URLs from legitimate ones. To enhance the model's accuracy and efficiency, we employ advanced techniques such as Canopy feature selection, which identifies the most important features, and Grid Search Hyperparameter Optimization, which fine-tunes the model parameters. These methods ensure our models are both precise and efficient. We evaluate the effectiveness of our approach using metrics such as precision, accuracy, recall, F1-score, and specificity. Our comparative analysis shows that our hybrid machine learning system, which incorporates NLP, performs better than existing models. This robust defense mechanism against phishing threats significantly enhances cybersecurity, providing a more reliable and effective solution to protect users from phishing attacks


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**A PROJECT REPORT ON
ENHANCED DDoS DETECTION USING MACHINE LEARNING**

**Major project submitted in partial fulfillment of the requirements for the
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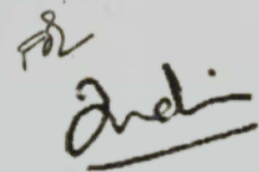
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ABSTRACT

Rapid population development on the internet poses a significant threat to the security of internet resources. The increasing number of Denial of Service (DoS) attacks has a direct impact on security. With this evolving threat, designing a cutting-edge method is difficult from a cyber-security perspective. In this work, we propose a machine learning-based system for detecting Distributed Denial of Service (DDoS) attacks, which utilizes Logistic Regression, K Nearest Neighbor, and Random Forest algorithms. We assess proposed models using a recently updated NSL KDD dataset. Our research's findings also demonstrate that proposed model is highly accurate in detecting Distributed Denial of Service (DDoS) attacks. Our results show that our proposed model significantly improves upon current state-of-the-art attack detection methods.

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A PROJECT REPORT ON
**PREDICTING SHOPPING MALL PROFITS
USING MACHINE LEARNING**

Major project submitted in partial fulfillment of the requirements for
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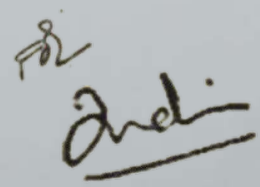
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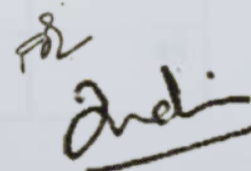


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ABSTRACT

We introduce an innovative strategy harnessing a fusion of machine learning methodologies to address customer churn and bolster purchase conversion rates within online shopping platforms. We employ decision trees to segment customers, facilitating the creation of tailored churn rate estimation models for each segment. Furthermore, recurrent neural networks (RNNs) are utilized to delve deeper into data, enhancing the precision of customer behavior prediction. This amalgamated approach enables the issuance of personalized discount coupons in real-time, predicated on forecasted churn probabilities and shopping inclinations. Compared to rudimentary models, our method demonstrates markedly superior performance, resulting in augmented sales figures and diminished marketing expenditures. By leveraging decision trees for segmentation, we can effectively categorize customers based on various attributes, thereby facilitating the development of targeted strategies to mitigate churn. The incorporation of RNNs enhances predictive capabilities, enabling us to anticipate customer behavior more accurately. The real-time issuance of personalized discount coupons based on predicted churn probabilities and shopping propensities adds a dynamic layer to our approach, fostering customer engagement and loyalty. Ultimately, our method presents a comprehensive solution to the challenges of customer churn and conversion optimization in online retail environments, yielding tangible benefits in terms of increase overheads.



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A PROJECT REPORT ON

**Enhancing Forest Wildfire Detection through
Deep Learning: A Machine Vision Course
Experiment**

Major project submitted in partial fulfillment of the requirements for the
award of the degree of

MASTER OF COMPUTER APPLICATIONS

(2022-2024)

by

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ABSTRACT

TABLE OF CONTENTS

Wildfires are one of the disasters that are difficult to detect early and cause significant damage to human life, ecological systems, and infrastructure. There have been several research attempts to detect wildfires based on convolutional neural networks (CNNs) in video surveillance systems. However, most of these methods only focus on flame detection, thus they are still not sufficient to prevent loss of life and reduce economic and material damage. To tackle this issue, we present a deep learning-based method for detecting wildfires at an early stage by identifying flames and smokes at once. To realize the proposed idea, a large dataset for wildfire is acquired from the web. A light-weight yet powerful architecture is adopted to balance efficiency and accuracy. And focal loss is utilized to deal with the imbalance issue between classes. Experimental results demonstrate the effectiveness of the proposed method and validate its suitability for early wildfire detection in a video surveillance system.

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A PROJECT REPORT ON

ENHANCING FOOD DEMAND SUPPLY CHAIN MODELING THROUGH REGRESSOR ANALYSIS

Major project submitted in partial fulfillment of the requirements for
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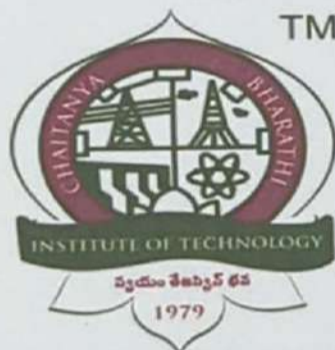
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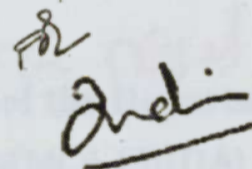
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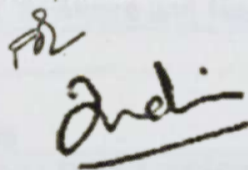
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ABSTRACT

Accurate demand forecasting has become extremely important, particularly in the food industry, because many products have a short shelf life, and improper inventory management can result in significant waste and loss for the company. Several machine learning and deep learning techniques recently showed substantial improvements when handling time-dependent data. This paper takes the 'Food Demand Forecasting' dataset released by Genpact, compares the effect of various factors on demand, extracts the characteristic features with possible influence, and proposes a comparative study of seven regressors to forecast the number of orders. In this study, we used Random Forest Regressor, Gradient Boosting Regressor (GBR), Light Gradient Boosting Machine Regressor (LightGBM), Extreme Gradient Boosting Regressor (XGBoost), Cat Boost Regressor, Long Short-Term Memory (LSTM), Bidirectional LSTM (BiLSTM) in particular. The results demonstrate the potential of deep learning models in forecasting and highlight the superiority of LSTM over other algorithms. The Root Mean Squared Log Error (RMSLE), Root Mean Square Error (RMSE), Mean Average Percentage Error (MAPE), and Mean Average Error (MAE) reach 0.28, 18.83, 6.56%, and 14.18, respectively. As extension we have used CNN2D (convolution neural networks 2 Dimension) algorithm which will optimized dataset features with multiple neurons and can able to extract more accurate features from dataset which help in more accurate forecasting and this algorithm is giving better results compare to other algorithms.



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A PROJECT REPORT ON

**ENHANCING ANDROID SECURITY: NOVEL MACHINE
LEARNING FRAMEWORK FOR DETECTING MALWARE
THROUGH FEATURE COEXISTANCE**

Major project submitted in partial fulfilment of the requirements for the award
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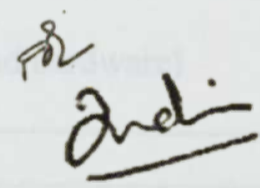
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ABSTRACT

This project introduces an advanced machine learning framework for enhancing Android security by detecting malware through the co-existence of static features. The framework hypothesizes that Android malware requests an abnormal combination of permissions and APIs compared to benign applications. To validate this, a novel dataset was created from Android APK samples in the Drebin, Malgenome, and MalDroid2020 datasets, and the frequent pattern growth (FP-growth) algorithm was used to identify the most relevant co-existed features. Various machine learning models, including Random Forest (RF), K-Nearest Neighbours (KNN), Logistic Regression (LR), Decision Tree (DT), and Support Vector Machine (SVM), were trained and tested. This method significantly improved detection accuracy, with Random Forest showing the highest accuracy among individual models. The proposed approach outperformed state-of-the-art models, highlighting the effectiveness of feature co-existence analysis in detecting sophisticated malware, thus contributing to better cybersecurity for Android devices. Additionally, the project extends the detection framework by incorporating a Stacking Classifier algorithm, an ensemble learning method combining the predictions of base models such as RF, Multi-Layer Perceptron (MLP), and LightGBM (LGBM) to create a more accurate final prediction.



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A PROJECT REPORT ON

**“ENHANCING DISASTER VICTIM DETECTION IN
DEBRIS ENVIRONMENT”**

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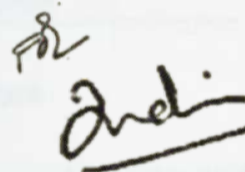
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ABSTRACT

Search and rescue operations in collapsed buildings pose significant challenges due to high risk and time constraints, with the critical window for victim survival narrowing within the first 48 hours. To expedite response and victim identification, this study proposes a novel approach combining mobile robots and AI-driven Human Victim Detection (HVD) systems. Leveraging Transfer Learning-based Deep Learning, we develop a method for identifying human victims in collapsed building environments, integrating machine learning classification algorithms. A custom dataset with class labels for body parts is utilized, and CNN(Conventional Neural Networks) model extracts class-wise features. Feature selection is performed to analyze the impact on classification accuracy. Various decision tree algorithms and popular classifiers are employed for classification, with the random tree algorithm emerging as the optimal approach, achieving 91.03% accuracy in real-time classification with minimal computation time (0.9 seconds). This approach offers a promising solution for enhancing the efficiency and effectiveness of search and rescue operations in disaster scenarios.



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A PROJECT REPORT ON
CYBERBULLYING DETECTION BASED ON EMOTION

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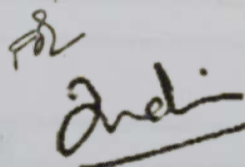
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ABSTRACT

Cyberbullying is a pervasive issue with significant negative consequences, prompting extensive efforts to develop effective detection techniques. This project builds upon the premise that emotions play a crucial role in cyberbullying, proposing a novel approach to detect cyberbullying by leveraging emotion-based features. Utilizing an improved Emotion Detection Model (EDM) and lexicon-based methods, we analyze emotions and sentiments extracted from cyberbullying-related datasets from Twitter. The datasets were meticulously annotated to enhance the accuracy of emotion and sentiment features.

Our approach integrates these emotion and sentiment features with contextual information to train machine learning models for cyberbullying detection. The performance of various models was evaluated using a pipeline that assessed algorithms on key metrics such as accuracy, precision, recall, and F1 score. Among the models tested, Bagging Classifier emerged as the most effective, achieving an accuracy of 92.81%, precision of 96.97%, recall of 91.94%, and an F1-score of 94.39%.

The results underscore the efficacy of incorporating emotion-based features, including lexicon-based emotion detection, in improving the detection of cyberbullying. By outperforming existing state-of-the-art models with a notable increase in recall and F1-score, our findings highlight the potential of emotion detection in enhancing cyberbullying prevention efforts. This work not only provides a robust emotion-annotated dataset but also demonstrates the significant role of emotional cues in the automated detection of cyberbullying, paving the way for more refined and effective intervention strategies.



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A PROJECT REPORT ON
**RESUME RATING USING NATURAL
LANGUAGE PROCESSING**

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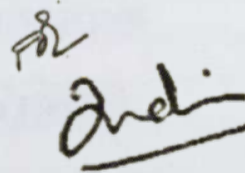
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	ABSTRACT	

In the contemporary job market, the recruitment process is increasingly becoming automated, necessitating efficient and accurate methods for resume screening. This project focuses on the development of an advanced Resume Rating System leveraging Natural Language Processing (NLP) techniques. The primary objective is to streamline the candidate evaluation process by automating the assessment of resumes based on predefined criteria. The system employs a multi-step approach, starting with data preprocessing, where resumes are cleaned and standardized. Following this, key information extraction techniques are applied to identify essential sections such as work experience, education, skills, and certifications. Using named entity recognition (NER) and part-of-speech (POS) tagging, the system extracts relevant entities and attributes, ensuring comprehensive understanding and contextual relevance. This automated approach not only reduces the time and effort required for initial candidate screening but also ensures a more objective and consistent evaluation process, ultimately leading to better hiring decisions. The project demonstrates the potential of NLP in transforming traditional recruitment methodologies and advancing towards more intelligent and fair hiring practices.



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A PROJECT REPORT ON
FRAUD DETECTION IN MEDICAL INSURANCE CLAIM
SYSTEM USING MACHINE LEARNING

Major project submitted in partial fulfillment of the requirements for the
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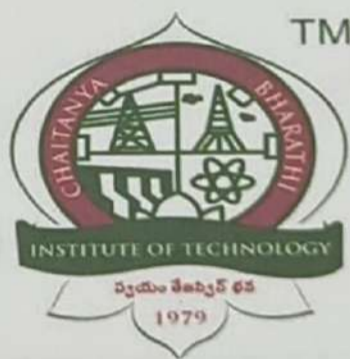
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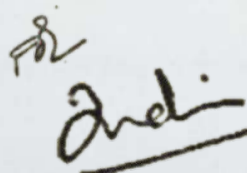
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ABSTRACT

The vast amount of healthcare data encompassing records, claims, and patient information, presents a valuable opportunity for machine learning to combat fraud. Health insurance agencies, managing billions of dollars in annual claims, face significant financial losses due to fraudulent activities. Traditional methods of detecting fraud are often slow, labor-intensive, and prone to inaccuracies. This proposal introduces a machine learning framework designed to improve fraud detection accuracy and efficiency. The core component is a Support Vector Machine (SVM), a powerful classification technique adept at handling high-dimensional data like healthcare claims. SVMs create a clear separation between fraudulent and legitimate claims, enabling accurate identification. To ensure optimal performance, the framework utilizes GridSearchCV, a tool that fine-tunes the SVM's hyperparameters. These parameters control the model's learning process and influence its ability to generalize. GridSearchCV systematically evaluates various hyperparameter combinations, ultimately selecting the configuration that yields the best results. The framework follows a systematic approach. First, data is collected from various sources and rigorously cleaned to ensure accuracy. Feature engineering then creates relevant features capturing key aspects of claims data. The SVM model is subsequently trained on this prepared data, with GridSearchCV optimizing its hyperparameters. Model evaluation involves testing on a separate dataset using metrics like precision, recall, and F1-score. This provides a comprehensive picture of the model's performance. Finally, the trained and validated model is deployed into the insurance company's system for real-time processing. It flags potential frauds for further investigation, while continuous monitoring and retraining ensure the framework adapts to evolving fraud patterns. By leveraging machine learning, this framework offers a robust solution to healthcare fraud, aiming to significantly enhance detection accuracy and efficiency. This translates to cost savings for insurance companies and strengthens the integrity of the healthcare insurance system.



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**A PROJECT REPORT ON
FACE RECOGNITION SYSTEM**

Major project submitted in partial fulfillment of the requirements for the
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**MASTER OF COMPUTER APPLICATIONS
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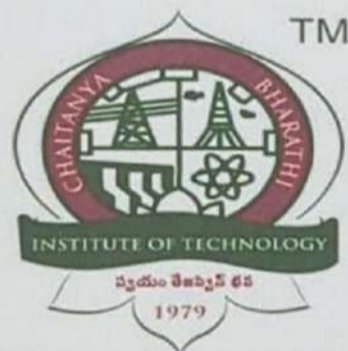
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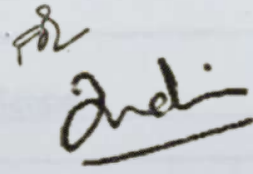
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ABSTRACT

We are living in an era where automation and connectivity dominate our daily lives, driven by the rapid advancements in the Internet of Things (IoT), image processing, and machine learning. These technologies are continuously evolving, leading to significant transformations in various systems, including the traditional methods of attendance tracking. The shift from manual, paper-based attendance logs to automated face recognition systems exemplifies this technological evolution, offering more accurate and efficient results. This project proposes the development of a comprehensive embedded class attendance system utilizing facial recognition technology to identify and verify students. The primary objective of this system is to accurately determine whether a student is present in a specified class by comparing the captured facial image against a pre-registered database of student faces. This not only automates the attendance process but also enhances the security and reliability of attendance records. The system employs a machine learning algorithm implemented in Python, leveraging computer or laptop cameras, or alternatively, an external camera connected to the system. The core of the facial recognition process is based on the Local Binary Patterns (LBP) algorithm, known for its efficiency in texture classification and face recognition tasks. The LBP algorithm converts an image into a set of binary patterns, which are then used to generate a unique histogram representing the facial features. Moreover, this system can be extended beyond educational institutions to workplaces, conferences, and other events where attendance tracking is essential. By automating the attendance process, organizations can improve efficiency, reduce costs, and ensure the integrity of attendance records. In conclusion, the implementation of a face attendance system using facial recognition technology represents a significant advancement in the automation of attendance tracking. By leveraging machine learning algorithms and image processing techniques, this system provides an accurate, efficient, and secure solution for managing attendance in various settings.


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A PROJECT REPORT ON
CLOUD PERFORMANCE AND SECURITY ENHANCEMENT
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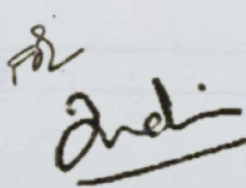


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ABSTRACT

Outsourcing data to a third-party administrative control, as is done in cloud computing, gives rise to security concerns. The data compromise may occur due to attacks by other users and nodes within the cloud. Therefore, high security measures are required to protect data within the cloud. However, the employed security strategy must also take into account the optimization of the data retrieval time. In this paper, we propose Division and Replication of Data in the Cloud for Optimal Performance and Security (DROPS) that collectively approaches the security and performance issues. In the DROPS methodology, we divide a file into fragments, and replicate the fragmented data over the cloud nodes. Each of the nodes stores only a single fragment of a particular data file that ensures that even in case of a successful attack, no meaningful information is revealed to the attacker. Moreover, the nodes storing the fragments, are separated with certain distance by means of graph T-coloring to prohibit an attacker of guessing the locations of the fragments. Furthermore, the DROPS methodology does not rely on the traditional cryptographic techniques for the data security; thereby relieving the system of computationally expensive methodologies. We show that the probability to locate and compromise all of the nodes storing the fragments of a single file is extremely low. We also compare the performance of the DROPS methodology with ten other schemes. The higher level of security with slight performance overhead was observed.


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A PROJECT REPORT ON
A MACHINE LEARNING APPROACH FOR
MALARIA DETECTION.

Major project submitted in partial fulfillment of the requirements
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TABLE ABSTRACT

Malaria, a life-threatening disease worldwide, can be diagnosed using antigen tests and microscopy tests. However, both of them are erroneous and time-consuming. Therefore, a trustworthy and fast early malaria prognosis infrastructure is required. In this age of machine learning (ML), there are several ML-based methods to do the task. This paper proposes an unorthodox method for malaria prognosis based on an extreme learning machine (ELM) algorithm. In this regard, Convolutional Neural Networks (CNN), ELM, and double hidden layer (DELM) have been used as classifiers. A CNN model has been used as a feature extractor and also as a classifier to perform a comparative study. The derived features have been used to train ELM and DELM. Two versions of the malaria image dataset have been used: one is the original dataset, and the other is a modified dataset where ambiguous samples have been removed. The parasite inflator acts as the shape increaser of the small, darker malaria parasites in the RBC images in order to detect malaria easily. CNN-DELM has achieved a sanguine result on every performance standard compared to CNN and CNN-ELM. Hence, the proposed CNN-DELM model has also produced either comparable or better results when compared to other methods proposed in the literature, showing its robustness in detecting malaria.

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A PROJECT REPORT ON

**ADVANCING KNEE OSTEOARTHRITIS DIAGNOSIS:
CENTERNET OPTIMIZATION WITH PIXEL-WISE
VOTING**

Major project submitted in partial fulfillment of the requirements for the
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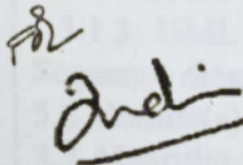
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ABSTRACT

Radiologists have been using multi-view images to figure out knee problems, such as computer tomography (CT) scans, MRIs, and X-rays. The most cost-effective approach for obtaining images is X-ray, which is used regularly. There are several image-processing approaches available to detect knee disease in its early stages. However, the present methods might be enhanced in terms of accuracy and precision. Furthermore, hand-crafted feature extraction techniques in machine learning-based approaches are time-consuming. So, The paper proposes a technique based on a customized CenterNet with a pixel-wise voting scheme to automatically extract features for knee disease detection. The proposed model uses the most representative features and a weighted pixel-wise voting scheme to give a more accurate bounding box based on the voting score from each pixel inside the former box. The proposed model is a robust and improved architecture based on CenterNet utilizing a simple DenseNet-201 as a base network for feature extraction. The proposed model detects knee osteoarthritis (KOA) in knee images precisely and determines its severity level according to the KL grading system such as Grade-I, Grade-II, Grade-III, and Grade-IV. The proposed technique outperforms existing techniques with an accuracy of 99.14% over testing and 98.97% over cross-validation.



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A PROJECT REPORT ON
**IMPLEMENTING A GUIDED NEURAL NETWORK
METHODOLOGY TO ANTICIPATE EARLY
READMISSION IN DIABETIC PATIENTS**

Major project submitted in partial fulfillment of the requirements for the
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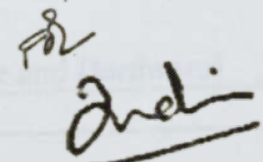
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ABSTRACT

Diabetes is a serious chronic health issue that affects millions of people worldwide. Effective diabetes treatment may lower the likelihood of hospital readmission and related cost losses for both the healthcare system and insurance companies. Hospital readmission is a high-priority healthcare quality measurement that reveals inadequacies that raise healthcare expenses and harm hospitals' reputations. Predicting readmissions in the early phases draws special attention to patients who are at high risk of readmission. There has been some attempt in applying machine learning predictive models such as ensemble learning with Extreme Gradient Boosting (XGBoost), Support Vector Machine (SVM) and Artificial Neural Networks (ANN) to correctly identify if the readmission can happen within 30 days (<30 days) or it may never happen or happens after 30 days (≥ 30 days). We are proposing a new method that is applied to ANN to guide it through its gradient descent optimizers by realizing consistent vs inconsistent data in every batch. Our results show that there are up to 1.5% improvement in classification accuracies in both 2-class and 3-class variations of the experimented benchmark dataset when using the guided optimizer to train the ANN as opposed to the standard optimizer. Guided ANN is also able to achieve better error convergence than standard ANN.


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A PROJECT REPORT ON

DETECTING MENTAL DISORDERS IN SOCIAL MEDIA THROUGH EMOTIONAL PATTERNS

Major project submitted in partial fulfillment of the requirements for the
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ABSTRACT

Millions of people around the world are affected by one or more mental disorders that interfere in their thinking and behavior. A timely detection of these issues is challenging but crucial, since it could open the possibility to offer help to people before the illness gets worse. One alternative to accomplish this is to monitor how people express themselves, that is for example what and how they write, or even a step further, what emotions they express in their social media communications. In this article, we analyze two computational representations that aim to model the presence and changes of the emotions expressed by social media users. In our evaluation we use two recent public data sets for two important mental disorders: Depression and Anorexia. The obtained results suggest that the presence and variability of emotions, captured by the proposed representations, allow to highlight important information about social media users suffering from depression or anorexia.

The purpose of the project is to assess the efficacy of computational representations in detecting depression and anorexia through analyzing social media users' expressed emotions. By leveraging these representations on public datasets, it seeks to highlight crucial information about individuals with mental health issues. Additionally, it explores the potential of combining these representations to enhance detection performance. The study emphasizes the interpretability of results, offering insights into emotional dynamics. Overall, it contributes to early intervention strategies and support systems for those affected by mental disorders, underscoring the importance of timely detection and proactive assistance in mental healthcare.

The scope of project involves focusing on refining computational representations to better capture nuanced emotional expressions and detect a broader range of mental health disorders beyond depression and anorexia. Additionally, exploring real-time monitoring and intervention systems based on these representations could enhance proactive support for individuals in need. Integration of multi-modal data sources, such as audio and video, could provide richer insights into users' emotional states. Furthermore, investigating the ethical implications of using social media data for mental health assessment and ensuring privacy protections remain paramount. Overall, the project opens avenues for advancing technology-driven mental health interventions and addressing evolving societal needs.


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