

# SHIFALI AGRAHARI

M.Tech + P.hd (Dual) from IIT Guwahati

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## Education

### Indian Institute of Technology, Guwahati

M.Tech+P.hd (Dual) in Computer Science

Aug. 2022 – July 2027

CGPA: 7.9

### P.hd Objective

Detecting AI generated documents "Distinguished b/w LLM generated and Human text"

Under Prof. Sanasam Ranbir Singh

NLP, LLM, GenAI

### Dr. A.P.J. Abdul Kalam Technical University,U.P.

Bachelor of Technology in Chemical Engineering

Sep. 2016 – May 2020

CGPA:8.41

## Internship Experience

### Kaksha.ai

Research Engineer Intern

Nov 2023 - going

Remote (Part Time)

- Implemented and optimized the full interactive platforms according to new syllabus generate and find most similar question from PYQ papers. Define and address challenges in NLP with a focus on improving the accuracy of question similarity for variable-length question and different section, concept and topic using LLM model.
- Predict student ability and proficiency to solve next question on the analysis of all the previous attempted question. Using Deep knowledge tracing (KT) model DKT, DKT+, DeepIRT, SAKT for Jamboree coaching dataset

### Technocolabs Softwares inc

Data Science Analytics Intern

Remote

- developed a website featuring a predictive algorithm capable of estimating the stock market value of specific companies. Developing data pipelines for cleaning, collecting, processing, and analyzing diverse datasets
- Collaborated with team members using version control systems such as Git to organize modifications and assign tasks.

## Projects

### Distinguished LLM generated review and Human Review |

Going project

- Create a Dataset of ai generated review in 4 different domain hotel, book, product and movie dataset using pretrained, finetune, prompting for GPT, Gemini, T5, Bart and Pegasus model.
- Accuracy 85.6% to differentiate Ai and human review using 2 main classification model Roberta and bert model.
- Create a human written 300 review on different domain and also 700 review created by different AI tool avail online then test Accuracy is 78.12% .

### Predicting Geoaction of Tweet text using GNN. | Data Mining, GCN, LSTM

Funded Project

- Using Graph, create a network between city, state, country, user and tweet text.
- Implemented GCN + FNN improved accuracy 69% to 81% the main challenge problem of over-fitting.

### Two-Step Sentiment Classification for Recasted Hindi Data | Python, NLP, Pytorch, LSTM,

M.tech Project

- Enhance sentiment classification for Hindi Data by Utilizing Text Entailment(TE) predictions from context-hypothesis.
- Developed a LSTM RNN Model for analysis the text entailment and output of this used in sentiment prediction model.
- Evaluated against established baselines including Sent2Vec, Bag-of-words (BoW), and XLM-RoBERTa.
- Improved 63% to 76% accuracy of classification performance by joint objective(JO)+consistency regularisation(CR).

### Integrating Human Gaze with Graph Convolution model for Egocentric video | Amazon ML Summer School

- Using Egta Gaze+ dataset creates a optical flow and rgb 3D frame and create GCN for noun and verb.
- Enhance egocentric activity recognition by integrating human gaze information into attention I3D mechanisms.

## Relevant Coursework

- |                   |                       |                    |                         |
|-------------------|-----------------------|--------------------|-------------------------|
| • Data Structures | • Algorithms Analysis | • Machine Learning | • Information Retrieval |
| • Deep Learning   | • Linear Algebra      | • Python DSA Lab   | • LLM (Ai4bharat)       |

## Research Paper

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### **Multilingual MGT Detection: Leveraging Cross-Lingual Adaptation for Robust LLMs Text.** | *Pub.* **Coling'25**

- MLDet, a model that leverages Cross-Lingual Adaptation and Model Generalization strategies for Multilingual Machine-Generated Text (MGT) detection.
- Our approach demonstrates strong performance, achieving macro and micro F1 scores of 0.7067 and 0.7187, respectively, and ranking 15th in the competition. .

### **Guardians of Academic Integrity: Multilingual Detection of AI-Generated Essays** | *Pub.* **Coling'25**

- A fusion model that combines pre-trained language model embeddings with stylometric and linguistic features to improve classification accuracy.
- To enhance F1 scores, address class imbalance, and capture linguistic nuances across languages.

### **Text Authorship Attribution: Stylometric Insights into Human and LLM-Generated Text** | *Pub.* **ACM Dec 2024**

- Explores Cross- model Analysis these distinctions by comparing human-written text with text generated by various LLMs, including Gemini, GPT-Neo, Falcon, 011 LLaMA, and Bloom.
- Finding: Lexical richness is higher in human writing, reflected in higher TTR and Herdan C scores, while models like Gemini and Bloom create more repetitive text

### **A Large Scale Dataset for AI-generated Review Detection** | *under Review* **IEEE Trans.**

- study proposes a large-scale dataset for AI-generated review detection, consisting of human-authored and AI-generated reviews from eight large language models (LLMs), including GPT, BART, T5, Gemini, Pegasus, LLaMA, Gemma, and Mistral, across five domains: E-commerce, Books, Movies, Hotels, and Tourism.

### **How multilingual LLMs are! LLMs using multilingual Sentiment Analysis in Indian Language** | *Pub.* **RIC IITG**

- Tried to assess the current performance of LLMs in Indian languages by hand-picking a few multilingual LLMs (like XLM-R, mBERT, MuRIL, Navarasa, IndicBERT v2, mT5, GPT, Llama) that support these Indian languages and fine-tuning them using the technique of prompt tuning and few-shot learning for multilingual Sentiment Analysis

### **Fake News Detection Using Hashtag context** | *Revision submitted* **Journal : Pattern Recognition Letters**

- HCFND extract information from posts under hashtags as external context for fake news detection.
- HCFND outperforms existing state-of-the-art models from literature in fake news detection over social media.

## Technical Skills

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**Languages** — **Tools:** Python, C++, PyTorch, Numpy, Linux, Git, BASH scripting

**Technical:** LLM, Machine Learning, Deep Learning, Natural Language Processing, Text Processing, Git

## Leadership / Extracurricular

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- Attended IBM Research Maitreyee Bangalore 2024.
- Teaching assistant of Data structure coursera online portal
- Cracked and attended Amazon ML Summer School 2023.
- Selected D&I Track scholarship to attend CODS- COMADS 2023 International Conference held at IITB.
- Played a role boss in street play from Xpression Club, Inter IIT Cultural Meet, Street Play Organized by IIT Madras.
- TA for courses : Deep Learning, Software System Lab, CS101 Lab