Amrendra Pratap Singh

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LinkedIn

INTEREST

Deep Learning, Software Engineering ,Web Development

EDUCATION

2021–2025 **Bachelor of Technology**
CPI: 8.378 OUT OF 10
Computer Science and Information Technology
MJPRU Bareilly

2019–2020 **CBSE (XII)**
92.2%
K.C. Public School,Moradabad,UP

2017–2018 **CBSE (X)**
96.8%
S.S. Children Academy,Moradabad,UP

EXPERIENCE

AUGUST 2024–PRESENT

Indian Institute of Technology,Bhubhaneshwar
Reserach Internship

Supervisor: Prof Devashree Tripathy

Topic: **High Fidelity framework for Sustainable LLM Inference**
Project Detail: This research focuses on developing a robust and high-fidelity framework to reduce the energy consumption of LLM inference systems. Our approach leverages the DynamoLLM strategy, which dynamically adjusts GPU frequencies in response to varying request workloads, optimizing energy efficiency without compromising performance. We also integrate advanced LLM inference simulation frameworks, such as Vidur from Microsoft Research Labs, to rigorously test and validate our methods. Our goal is to achieve a 50 percent reduction in the carbon footprint of LLM inference systems while maintaining high accuracy and responsiveness.
Skills: LLM,Python,vLLM,Simulation Frameworks

SUMMER OF 2024

Indian Institue of Technology,Patna
Summer Reserach Intern

Supervisor: Prof Sourav Dandapat

Topic: **Hallucination Identification and Mitigation in LLMs**
Project Detail: I worked on creating an extensive dataset of responses from several LLM models, including GPT-4, Gemini, and LLaMA, specifically targeting medical questions. My tasks involved developing and applying algorithms to extract and evaluate claims from these responses. This included calculating various metrics such as factuality, semantic similarity, and syntactical similarity scores to assess the accuracy and reliability of the information generated by the models. The goal of this work was to enhance the identification and mitigation of hallucinations in LLMs, thereby improving the overall quality and trustworthiness of the information provided by these advanced language models.
Skills: NLP,DL, Algorithms, Claim Extraction,Model Evaluation,geminiAPI,HuggingFace,Medical Data Analysis

10TH JANUARY 2024–30TH MAY 2024

Institute of Engineering and Technology,Bareilly
Major Project

Supervisor: Prof Vinay Rishiwal

Topic: **Prediction of Water Availability for Well Construction**
Project Detail: This work introduces a novel methodology for predicting groundwater depth to optimize well construction, utilizing machine learning algorithms such as Linear Regression, Random Forest, Decision Trees, and K-Nearest Neighbors (KNN). Our approach encompasses comprehensive data preprocessing, feature selection, and model training, with evaluations based on MAE, MSE, and R-squared scores. Initial findings highlight the Random Forest Regressor's superior accuracy, closely followed by Decision Trees. Additionally, we developed a web application using HTML, CSS, JavaScript, and Flask, deploying models via joblib for efficient and user-friendly access.
Skills: Machine Learning,Back-end development,Python,Hydrogeology

6TH SEPTEMBER 2023–29TH DECEMBER 2023

Institute of Engineering and Technology,Bareilly
Artificial Intelligence (CS-342) Course project

Supervisor: Dr. Iram Naim (**PhD** I.I.T ,Roorkee)

Topic: **Uninformed Search algorithm based Sudoku Solver**
Project Detail: This project introduces a sophisticated Sudoku solver leveraging a robust backtracking algorithm implemented in Python. The solver features a Tkinter-based GUI for intuitive puzzle input and solution visualization. Key components include rigorous input validation, efficient error handling, and seamless integration of algorithmic processes. The solver adeptly handles Sudoku puzzles of varying difficulty levels, with future enhancements aimed at integrating constraint propagation and heuristic algorithms for optimized performance. This project highlights advanced algorithmic techniques and a user-centric design, showcasing the power of computational problem-solving in artificial intelligence.
Skills: Python, Tkinter, Backtracking Algorithm, GUI Development, Algorithm Optimization, Constraint Propagation, Heuristic Algorithms, Computational Problem-Solving

JUNE 2023–AUGUST 2023

Institue of Engineering and Technology ,Bareilly
Minor Project

Supervisor: Prof Vinay Rishiwal

Topic: **DermaDetect: System for Skin Cancer Detection**
Project Detail: Skin cancer is a critical health concern demanding early and accurate lesion classification for effective treatment. This project leverages K-Nearest Neighbors (KNN) and Convolutional Neural Networks (CNN) on the HAM10000 dataset to contribute to medical diagnostics. The review covers dermatological images, datasets, and successful CNN applications, exploring and addressing challenges such as data imbalance, limitation, domain adaptation, model robustness, and efficiency. Findings suggest a trend toward structured, lightweight, and multimodal approaches in skin cancer classification.
Skills: Convolutional Neural Networks (CNN), K-Nearest Neighbors (KNN), Data Preprocessing, Exploratory Data Analysis (EDA), Model Evaluation, Optimization Techniques, Image Processing, Medical Diagnostics

VISITS AND WORKSHOPS

I.T. Clinic, M.J.P Rohilkhand University,Bareilly,UP
Workshop

In the clinic workshop, I focused on computer hardware, conducting comprehensive tests to evaluate the capabilities of different systems. Through hands-on exploration, I examined various components and configurations, aiming to optimize performance and efficiency. This practical experience equipped me with valuable insights into hardware functionality and troubleshooting techniques, enhancing my proficiency in computer system analysis and maintenance..

10TH-11TH JANUARY 2023

ATAL Centre for Artificial Intelligence,IET Bareilly
Visit

During my visit to the Atal Centre for AI at IET Bareilly, I had the privilege of engaging in extensive discussions with **Dr. S.S. Bedi** regarding AI-related topics and the implementation details of various algorithms. Our conversations delved deep into the intricacies of artificial intelligence, covering a wide array of subjects ranging from machine learning techniques to algorithmic implementations. Through these enlightening exchanges, I gained valuable insights into the practical application of AI algorithms and their real-world implications. Dr. Bedi's expertise and guidance provided me with a deeper understanding of AI concepts and enriched my knowledge in this rapidly evolving field.

TECHNICAL SKILLS

OS	Linux, Windows
PROGRAMMING LANGUAGES	C, Python(Numpy, Matplotlib, Pandas, Scikit-learn, Tensorflow, Scipy,Keras),C++,JS,Java,R
SOFTWARE SKILLS	QGIS,Git,Github,Jupyter Notebooks,Mathematica,LaTeX

RELEVANT COURSES

I am a fourth-year student pursuing a Bachelor's degree in Computer Science and Information Technology. I have completed courses in Engineering Physics, Engineering Mathematics, Engineering Graphics, Basic Electronics Engineering, Environmental Studies, Fundamentals of Economics, Manufacturing Technology, Computer Fundamentals and C++ Programming, Discrete Mathematical Structure, Data Structure, Object-Oriented Programming using JAVA, Digital Electronics, Computer Organization, Computer Network, Database Management Systems (DBMS), Theory of Computation (TOC), Compiler Design, Python Programming, Analysis and Design of Algorithms, Data Mining Techniques, Operating Systems, Software Engineering, Cloud Computing, Wireless Networks, Interactive Computer Graphics, Machine Learning, Artificial Intelligence, and Programming in R.

ACTIVITIES

MARCH 2023-APRIL 2023

Workshop for Freshers
Organizer

JUNE 2022-JULY 2023

CodeZ Club I.E.T,Bareilly
Coordinator

PRESENT, FROM JANUARY 2022

National Service Scheme
Member

Cultural Club ,I.E.T,Bareilly
Coordinator

ACHIEVEMENTS

- GATE DA 2024 qualified(AIR 4860 with 395 gate score)
- SIH internal college hackathon Winner
- Solved 500+ algorithmic problems on various platforms
- School Topper in 10th and 12th