Rajan Thakulla

| GitHub | Linkedin | LeetCode |
Rajan102805@gmail.com | +91 7676820187 |

Education

National Institute of Technology Rourkela — Rourkela, India
Bachelor of Technology in Computer Science and Engineering — *2022 – 2026*

- Coursework: Data Structures and Algorithms, Theory of Computation, Digital System Design, Computer Architecture and Organization, DBMS, Operating system, Object oriented Programming, Probability and Statistics, Computer Network, Microprocessor and Micorcontroller, Computer Vision, Natural Language Processing, Software Engineering.

SSMRV PU College — Bangalore, India
Senior Secondary Education (12th) — *April. 2020 – May 2022*

- Percentage: 94

Babylon National School — Kathmandu, Nepal
Secondary Education (10th) — *April. 2015 – March 2020*

- GPA: 4.0/4.0

Work Experience

Indian Institute of Technology Bhubaneshwar, IIT BBS — Dec 2024 – Present
Research Internship — *Bhubaneshwar, India*

- Working on Project in collaboration with Microsoft on an NLP project focused on travel recommendations using LLM
- Supervisor: Dr Shreya Ghosh (IIT BBS, Bhubaneshwar) and Dr. Abhik Jana (IIT BBS, Bhubaneshwar)

Institute of Infrastructure Technology Research and Management — May 2024 – July 2024
Research Internship — *Ahmedabad, India*

- **Project:** Developed and Implemented Hypertension Detection and its classification Model: Utilized deep learning algorithms: Convolutional Neural Network(CNN) to analyze PPG (photoplethysmogram) signals for accurate detection of hypertension, improving diagnostic accuracy through advanced signal processing techniques
- Supervisor: Dr Manish Sharma (IITRAM,Ahmedabad)

Algorithmic and Programming Society, NITR — Dec 2022 – Oct 2023
Technical Member — *Rourkela, India*

- Collaborated in organizing and executing coding workshops, competitive programming contests, and algorithmic problem-solving sessions for students.
- Supported and mentored junior members in developing foundational programming knowledge and competitive coding strategies.
- Enhanced skills in C++, Python, and advanced algorithms through regular participation in APS coding events and hackathons.

Research Papers

- Hypertension detection and classification based on PPG signals using Convolutional Neural Network (CNN) [Link]

Technical Skills

Languages:Python, C/C++, Java, SQL, HTML/CSS
Developer Tools: Git, VScode, PyCharm, Colab, Jupiter, Matlab
Data Science/ Machine Learning: Natural Language Processing, Generative AI, Deep Learning, Data visualisation, Feature Selection and Extraction, EDA, Supervised Learning and Unsupervised Learning Algorithms
Libraries: TensorFlow, Pandas, Keras, NumPy, Matplotlib, seaborn, Scikit-learn, PyTorch, Requests

Languages

English(Fluent)
Hindi(Fluent)
Kannada(Intermediate)

Projects

Machine Learning for Diabetes Prediction | *NumPy, Pandas,scikit-learn,Streamlit*

- Developed a project focused on detecting diabetes in individuals using Support Vector Machines (SVM) as the primary machine learning algorithm
- Implemented the SVM model for diabetes detection, leveraging the scikit-learn (sklearn) library for machine learning functionalities.
- Created an interactive user interface for the project using Streamlit, enhancing user experience and accessibility. .

NanoGPT (Lightweight Text Generation Model) | *Python, PyTorch, Transformers, DDP, tiktoken, wandb*

- Built and fine-tuned a lightweight GPT model inspired by minGPT for text generation tasks. Configured tokenization pipelines using BPE and implemented data preprocessing for efficient training.
- Trained GPT-2 (124M parameters) on the OpenWebText dataset using Distributed Data Parallel (DDP) for optimal performance. Designed scalable training loops and customizable model definitions, enabling adaptability for various use cases.
- Generated realistic text samples and evaluated model performance against industry benchmarks.

Text Summarization using Transformers | *Python, PyTorch, Transformers, NLTK, Py7zr, NLP*

- Fine-tuned the Pegasus model for abstractive text summarization on the CNN/DailyMail dataset using Hugging Face Transformers and PyTorch. Implemented text preprocessing and tokenization using NLTK and AutoTokenizer to optimize data for model training and inference.
- Designed an end-to-end pipeline, including configuration updates and model integration, to automate text summarization tasks. Utilized sacrebleu and rouge score metrics for evaluating model performance and improving summarization quality.

STock Market Prediction Model | *Python, Numpy, Pandas, Matplotlib, TensorFlow, Scikit-learn*

- Developed a stock market prediction model using LSTM neural networks Preprocessed historical stock data with normalization and feature engineering using pandas and numpy..
- Visualized results with plots comparing actual vs. predicted prices and tracked training/validation loss and achieved an R-squared (R^2) of 0.96, evaluated model performance with MAE (5.86) and RMSE (9.12).

Achievements/Awards

INNOV-ATH-ON 2024 Hackathon 2nd Runner up March 2024
NIT Rourkela, India

- **Project Name:** BrandBurst - Provides a platform for collaboration of brands and influencers, especially targeting small brands and small influencers
- Hackathon organizer: FTBI, E-Cell NITR, GDSC NITR, and Open Code
- Tech Stack: HTML, CSS, JavaScript, Python

Study in India G-2 (50% fees waiver) by Indian Government August 2022
Govt. of India

- Received the prestigious Study in India G-2 scholarship (50% tuition fee waiver) awarded by the Indian Government for academic excellence.

Extra Curricular Activities

Core Team Member, Guest Lecture Team Aug 2024 – Nov 2024

INNOVISION'24

Led a team of 50 coordinators in organizing and executing the Guest Lecture series for the three-day NitrUtsav festival. Oversaw all aspects of guest management, including outreach, travel arrangements, ticketing, payments, and accommodation. Negotiated guest participation terms and ensured seamless coordination, enhancing the overall experience for speakers and attendees.

Coordinator, Guest Lecture Team 2023 – 2024

NITRUTSAV'24

Led a team of 13 members in organizing the Guest Lecture series for NIT Rourkela's grand cultural fest, NitrUtsav '24. Identified and shortlisted potential guest speakers, established contact with them, and negotiated participation details. Coordinated logistical arrangements, including travel and accommodation, ensuring a seamless experience for guest lecturers.

Coordinator, Sponsorship Team 2023 – 2024

INNOVISION'23

Collaborated with a team of 15 members in securing sponsorships for NIT Rourkela's premier tech fest, Innovision '23. Identified potential sponsors and established initial points of contact through various channels, including social media. Supported outreach efforts and assisted team leaders in negotiating and finalizing sponsorship agreements.