Rahul Ramesh Omalur

Bangalore, Karnataka

🌐 My Website   ✉ Mail me here!   🔗 My Linkedin.   ⌨ My Github account

Education

Indraprastha Institute of Information Technology(IIITD)   Nov. 2022 – Present
Bachelor of Technology in Computer Science and Artificial Intelligence   New Delhi, Delhi
CGPA: *8.67*

Relevant Coursework

- Data Structures and Algorithms
- Object Oriented Programming
- Artificial Intelligence
- Machine Learning
- Database Management
- Deep Learning
- Computer Networks
- Operating Systems
- Natural Language Processing

Experience

TCS Research & Innovation   May 2025 – July 2025
Machine Learning Intern   Remote

- Preprocessed and analyzed ECG signals and patient metadata using Pandas, scikit-learn, and PyTorch.
- Built predictive models to assess Coronary Artery Disease (CAD) risk in Indian patients using clinical datasets from hospitals across India.

CodePlex Technologies Private Ltd.   May 2024 – July 2024
Software Engineer Intern   Bangalore, Karnataka

- Assisted in migrating obituary-related data from legacy websites using PHP Laravel and Simple HTML DOM Parser.
- Resolved anomalies in the AutoImporter tool to ensure accurate structured data transfer for Tribute Technologies Ltd.
- Worked on improving automation and system integrity using MySQL and Laravel.

Projects

Automatic Music Transcription (BTP) | *CNN, GRU, GNN, GATConv, PyTorch*   Sept 2024 – May 2025

- Developed PolyGraphAMT and GAT-AMT models using CNN-GRU encoders and GNN-based decoders with GATConv layers.
- Captured temporal, pitch, and polyphonic relationships in piano music transcription.
- Achieved competitive accuracy against baselines like Transkun and Kong using mel-spectrogram input features.

QUADRA – Intent-Aware Counterspeech Generation | *HateBERT, BART, NLP, Transformers* Jan 2025 – May 2025

- Built a modular NLP framework with a shared HateBERT encoder and intent-specific BART decoders.
- Explored fusion techniques (Linear, Cross Attention, Shared Fusion) for intent-aware generation.
- Proposed DialoRank, a zero-shot ranking method; QUADRA outperformed DialoGPT and GPS on all major NLP metrics.

SmartReach AI – Email Campaign Manager | *Django, Next.js, LLMs, Regression*   Jan 2025 – May 2025

- Built a full-stack marketing platform featuring LLM-powered content generation and regression-based send-time optimization.
- Implemented real-time analytics dashboard with compliance to India's DPDP Act (2023).
- Used Django REST API and Next.js frontend for seamless user experience.

AI/ML-Aided Cardiovascular Disease Prediction | *PyTorch, NeuroKit, ECG, GNN*   July 2024 – Sept 2024

- Designed deep learning models including Graph Neural Networks to classify cardiovascular diseases using 12-lead ECG signals.
- Collaborated under Prof. Anubha Gupta at SBILab to extract medical insights and evaluate model performance.

Technical Skills

Languages: SQL, Python, Java, C, SWI-Prolog, HTML, PHP
Developer Tools: VS Code, Pandas, Jupyter Notebook, Google Colab, FastAPI, AWS
Technologies/Frameworks: Pandas, MySQL, Flask, Laravel,TensorFlow,PyTorch,LangChain

Leadership / Extracurricular

Cyfuse   Feb 2024 - May 2024
Helped develop projects for the CyFuse technical team.   *Projects Team & Content Team Member*

AudioBytes   Oct 2023 - Current
Organized various events and helped organize the musical events for our college fest.   *Operations Team & Band Member*