

Manish Balamurugan

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Relevant Links: [LinkedIn](#) | [GitHub](#) | [Google Scholar](#)

Programming Languages: Python, Java, JavaScript, C++, HTML, CSS, SQL

Frameworks: Django, React, NextJS, Tensorflow, Keras, PyTorch, Flask, Node, Express, FastAPI, JQuery, Langchain

Technologies: Git, AWS (S3, EC2, SQS), PostgreSQL, Redis, OpenSearch, MongoDB, Firebase, Docker

EDUCATION

University of Virginia

Expected Graduation: May 2024

- BA Computer Science
- **Activities:** Teaching Assistant at Darden School of Business for Coding with GPT and SDE Essentials, UVA Indian Student Association, UVA Machine Learning Club, Venture Capital Fellow at Ripple Ventures
- **Certification:** Interim Top Secret Clearance

WORK EXPERIENCE

C3.AI

June 2024 - Current

Solutions Engineer (Contractor - Paradyme)

McLean, VA

- Work as a Team Lead for developing AI applications using C3.AI's model-driven architecture, implementing custom ML pipelines and visual development tools for enterprise and government clients.
- Automated data preprocessing workflows using Python, Pandas, and NumPy, implementing custom ETL scripts for feature extraction and data cleaning, resulting in 60% faster model training cycles and standardized data generation across ML pipelines.

Amazon

September 2022 - December 2022

Software Developer Intern - Ads

Arlington, VA

- Led migration of critical advertising component service to Amazon's cloud infrastructure, improving service reliability and reducing deployment time by 40%.
- Automated resource management for advertising systems using Python and AWS S3, reducing cloud storage costs by 30% and optimizing deployment pipelines.

Johns Hopkins University | [NIH Research Paper 1](#) | [Research Paper 2](#)

October 2018 - May 2021

AI Research Intern under Professor Amir Manbachi

Baltimore, MD

- Engineered deep learning based pipelines using YOLOv4 architecture for real-time detection of foreign objects in neurosurgical ultrasound imaging, significantly enhancing intraoperative safety protocols.
- Developed and optimized convolutional neural networks for low-cost medical imaging applications, leveraging transfer learning techniques to improve diagnostic accuracy in resource-constrained environments.

PROJECTS

Hyphora | (React, Flutter, Firebase)

- Built and scaled a tech networking platform to **5,000+ daily active users**, implementing ML-based matching algorithms to connect professionals based on skills and interests
- Lead a team of 5 engineers to develop a full-stack application using React and Firebase, developing real-time chat and authentication systems with optimized NoSQL data modeling.

Entropi | [App Link](#) | (React, Node, Flask, OpenAI, RAG, Langchain, LLMs, AWS, MongoDB)

- Developed a user research automation platform, enabling product leaders and engineers at startups and enterprises to conduct autonomous qualitative interviews and leverage external data connectors for actionable business insights, utilizing Python, Flask, and React.
- Engineered autonomous generative agents using LLMs via Langchain for real-time qualitative interviews, boosting user engagement and decision-making insights.

SE1 R&D | [Github Code](#) | (OpenAI, Langchain, HuggingFace, Python, Flask)

- Engineered a real-time financial analysis platform using Python and LangChain, integrating multiple financial APIs for automated market sentiment analysis and due diligence for **Scale AI's Generative AI Hackathon**.
- Implemented vector similarity search with ChromaDB and fine-tuned HuggingFace models for sentiment classification, processing 1000+ financial documents daily with 90% accuracy.

Magnus | (OpenAI, Whisper, MongoDB, RLHF, RAG)

- Engineered medical coding system using custom GPT models and RAG, achieving 85% accuracy in automated ICD-10 code classification.
- Built claims processing pipeline with Whisper ASR and RLHF-tuned LLMs for automated medical document analysis.

Marcus | [Github Code](#) | (React, Express, Socket.io, MongoDB, Docker)

- Developed an AI interviewer for medical screening services with React, Express, Socket.io; leveraging AWS and MongoDB for scalable, high-performance chat services.