

HARSHA REDDY TUMMALA

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3+ years of industry experience with Backend Development, Big Data systems, Cloud Computing, Scripting, and Machine Learning workflows. I thrive in ambiguous projects, bringing clarity through strong communication.

EDUCATION

Carnegie Mellon University (CMU) – Master of Software Engineering **GPA 3.97** (December 2024) Pittsburgh, US
Manipal Institute of Technology – Bachelor of Science Eng., Computer Science **GRE 333 (98%ile)** (June 2020) India

SKILLS

CMU Coursework: Deep Learning, AI Engineering, Software Architecture, Quality Assurance, Statistics for Decision Making, Comms for Software Leaders, Distributed Systems, Project Management, Quantum Machine Learning
Project Management: JIRA, Confluence, Azure DevOps (ADO), Scrum, Agile, Git, Cross-organizational Communication
Languages: Python, Objective-C, C++, Java, R || **ML:** Monitoring Systems, Data Modeling, Decision Trees, Clustering, RNN, LLM
Backend: API Design, Database Management || **Database Systems:** Spark, Hadoop, Hive, Snowflake, Kafka, MongoDB
Others: Docker, CI/CD, Requirement Gathering, System Design, AWS, GCP, Digital Ocean, Data Scraping, Scripting

PROFESSIONAL EXPERIENCE

BlackRock – Software Engineer II, **Aladdin Product Group** (07/2022-06/2023) Gurgaon, India
• Engineered a production application for **Hadoop process monitoring with Flask**, alleviating workload by 30% for four high-impact teams. Consolidated data from four high-traffic database servers, modularizing with APIs to foster new workflows and improve data accessibility, decreasing information retrieval times by 25%.

BlackRock – Full Stack Developer, **Aladdin Product Group** (06/2020-06/2022)
• Designed a Unified Data Model with Apache Cassandra, **consolidating investment data from over 100 sources**, enhanced consistency and minimized redundancy by approximately 40%.
• Refined data pipeline on Hadoop, boosting processing speed and accuracy for trade data by 30%, while designing fail-safes for eFront data migration to guarantee seamless integration and zero data loss.

BlackRock – Intern, **Aladdin Wealth Tech** (01/2020-06/2020)
• Developed a data pipeline monitoring application with Flask and Angular, enhancing oversight and diminishing downtime for Hadoop production processes by 20%.
• Revamped big data platform handling approximately 500 TB of production data using Python scripts, boosting data access and retrieval efficiency. Increasing data availability by almost 5x.

Virtusa – Data Science Intern (05/2020-07/2020) Hyderabad, India
• Created a client service on **Django** providing **API's** to generate analytical insights as trend charts, word clouds, etc. for any theme/topic clients search for, useful for assessing research and investment options in all emerging tech domains.

Huawei – Software Engineering Trainee (05/2019) Shenzhen, China
• One of 10 students chosen nationally for a 2-week program at Huawei HQ, learning large-scale 5G deployment and multi-generational support from Huawei's 5G Research Head.

International Institute of Information Technology – Computer Vision Research (05/2018-07/2018) Hyderabad, India

SOFTWARE ENGINEERING PROJECTS

Adrich – Team Lead, **CMU Studio Project** (01/2024-Present) Pittsburgh, US
Company Description: Adrich offers IoT-powered **AI solutions** providing real-time consumer insights and smart reordering for consumer-packaged goods (CPG) brands, enabling accurate demand forecasting and sustainable replenishment.

- Adapted to legacy code and swiftly changing requirements, ensuring all developments aligned with client expectations.
- Led system scaling for Adrich's IoT-powered platform, expanding its capacity from 20,000 to 5 million embedded chips, thereby supporting a **250x increase in operational scope**. Achieved a 60% reduction in assembly costs.
- Streamlined tech stack to handle 5x more data, in order to stream all data captured by sensors.

Integrated Movie Recommendation System with Continuous Model Updates – Engineered an end-to-end movie recommendation system using **boosting** and incorporating data via **Kafka streams** and continuous model updates. Increasing model update frequency by 40% and integrated Fairness and Explainability measures, ensuring 99% uptime and robustness.

- Gained expertise in training, deploying, and managing end-to-end ML workflows, ensuring robust and scalable solutions.

Accented Automatic speech recognition system – Created an automatic **speech recognition system** based on **Whisper**, for accented speech, improving recognition accuracy by 30% over traditional models. Deployed system across a dataset of 1 million voice samples, achieving a 25% reduction in error rates, broadening applicability for diverse linguistic communities.

- Acquired experience in following a structured approach to navigate and manage complex, research-intensive projects.

LEADERSHIP

CMU – Requirements for Software Engineering Teaching Assistant (08/2024-Present) Pittsburgh, USA
• Guided students in defining and modeling software requirements, focusing on user personas, architecture alignment, and physical system modeling, culminating in robust requirements documents for validation, verification, and design stages.

CMU – Prompt Engineering Teaching Assistant (01/2024-04/2024) Pittsburgh, USA
• Mentored students in evaluating current language models, using techniques like zero-shot, in-context learning, CoT, and performance optimization, while supporting both practical and theoretical aspects of AI-driven solutions.