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: Software Architecture, Quality Assurance, Statistics for Decision Making, Business and Marketing Strategy, Comms for Software Leaders, Distributed Systems, Deep Learning, Project Management, AI Engineering, Quantum Computing

Project Management: JIRA, Confluence, Azure DevOps (ADO), Scrum Master, Agile, Git, Cross-organizational Communication

Languages: Python, Swift, Objective-C, C++, Java, R **|| Database Systems:** Spark, Hadoop, Hive, Snowflake, Kafka, MongoDB

Backend: API Design, Database Management, JavaScript **|| ML:** Monitoring Systems, Data Modeling, Clustering, LLM's

Others: Docker, CI/CD, Requirement Gathering, Xcode, System Design, AWS, GCP, Digital Ocean, Data Scraping, Scripting

PROFESSIONAL EXPERIENCE

BlackRock – *Associate / Software Engineer II,* ***Aladdin Product Group*** *(07/2022-05/2023)*   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%.
- Led a team of four, ran scrum ceremonies across cross-functional teams, and oversaw intern onboarding and mentorship.

BlackRock – *Analyst / Full Stack Developer,* ***Aladdin Product Group*** *(07/2020-06/2022)*
- 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

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 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 – ***Statistics and Decision Making Teaching Assistant*** *(08/2024-Present)*   Pittsburgh, USA
- Guided 40 students in applying statistical decision-making techniques, emphasizing use of analytical tools including A/B testing and Monte Carlo simulations, reinforcing both practical and theoretical aspects of structured decision-making.

CMU – ***Prompt Engineering Teaching Assistant*** *(01/2024-04/2024)*   Pittsburgh, USA
- Mentored cohort of 40 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.

IEEE Student Branch Manipal – ***Chairperson*** *(IEEE number – 94393539) (01/2018-09/2019)*   Manipal, India