SAIRAJA KURELLI

saikurelli saikurelli@utexas.edu 713-624-2159 sai-kurelli

EDUCATION

University of Texas at Austin Austin, TX

*Master of Science and Bachelor of Science in **Computer Science**, Minor in **Business** - 3.9 GPA* *Graduated May 2025*

- **Relevant Coursework:** Machine Learning, Data Structures, Algorithms, Computer Architecture, Operating Systems, Graphics, Symbolic Programming, Programming for Correctness & Performance, iOS Development, Ethical Hacking
- **Graduate Courses:** Grounded NLP, Theory & Practice Of Secure Systems, Communication Complexity, Program Synthesis, Programming Languages, Cybersecurity Technology, Cybersecurity Technology Law and Policy

TECHNICAL SKILLS

Languages: Java, Scala, Python, SQL, C/C++, SwiftUI, React-Native with TypeScript
Developer Tools: Docker, AWS, Kafka, Kubernetes, K9s, UNIX, GitHub, Hadoop, and Spark

EXPERIENCE

Software Engineer Jun 2025 – Present

Visa Inc.

- Engineered **MCP server** to enable natural language queries, converting user input to SQL via **Claude** and querying results from **Trino Fact Tables** for secure, accurate data access.
- Fixed data consistency issues between distributed databases for report generation tasks in **Scala** and **Java**, resulting in a **30%** reduction in data discrepancies for **200+** affected merchants.
- Transformed fixed 1-second lag alerts into configurable data center-level thresholds between transactions, reducing false positives by **70%** for more accurate and meaningful monitoring.

Software Engineer Intern May 2022 – Aug. 2022, May 2023 – Aug. 2023, May 2024 – Aug. 2024

Visa Inc.

- (S24) Designed a real-time analytics system for Hadoop Resource Utilization, built to optimize performance of a distributed queue with $\geq$ **4k Virtual Cores** using **Apache Spark**, **Hive**, and **PowerBI**, fulfilling a key part of team's cloud migration initiative
- (S23) Built a **Spark** pipeline in **Scala** on Visa's **Hadoop File System** to extract **YARN** results for data analytics jobs across orgs, with compression and repartitioning for a **10x** reduction in file size
- (S22) Optim. 16 core **SQL** scripts w/ **JDBC** connections to **Spark-Thrift** servers for faster in-house data processing
- Designed systems with **JUnit** Unit Testing and integrated into **Splunk** to monitor logs in an **Agile** environment

PROJECTS

- **LLaVA-Mend (GitHub Link):** Lead contributor in fine-tuning **LLaVA-Med**, a medical MLLM, on challenging **Mediconfusion** radiology dataset, improving accuracy from **23.58%** to **48.55%**. Utilized **PEFT**, **LoRA**, and **DeepSpeed** for efficient distributed training on NVIDIA A100 GPUs. Benchmarked against prior models including proprietary solutions.
- **MDP Modelling (GitHub Link):** Designed a Programming Language with probability embedded in the syntax to support modelling **Markov Decision Processes (MDP)**. Applied the language to model a Blackjack game, implementing a value iteration algorithm to compute optimal policies and value functions.
- **HackMerced-VII Winner (Lablr)**: Designed a **Vue.js** Chrome extension with **OpenCV** to detect spatial pixel irregularities and assign tags on image distortions, integrated with Instagram data stored on **AWS S3**

LEADERSHIP

President (2023-2024), Vice President of Finances (2020-2023) Aug. 2020 – May 2024

Association for Computing Machinery *University of Texas*

- Designed and hosted community events to build an ACM community of more than 300 UT Students
- Improved Academic Lesson Plans for CS 101s and pioneered new events like **AWS** and **Kafka** workshops
- Coordinated and directed budget resources over **$19,000** annually from 2020-2024

Lead Teaching Assistant Jan. 2022 – May 2025

Elements of Computers and Programming *University of Texas*

- Designed quizzes and **Docker** autograders for over **600** students and graded section's **Python** assignments
- Conducted office hours to help students work through questions over Data Structures and OOP concepts