Aditya Kunatharaju
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EDUCATION

University of San Francisco – *Master's in Computer Science,* *GPA: 3.9/4.0* (Aug 2022 – May 2024)

CS Bridge Program (Aug 2021 – May 2022)

Relevant Coursework: AI, Machine Learning, Big Data, Distributed Systems, Network Programming, Systems Foundations, Computer Architecture, Discrete Math, Data Structures and Algorithms, Modern Parallel Programming, HCI

Directed Study with Dr. Matthew Malensek - Allocating Resources in a Multi-hub Environment

- Geospatial indexing and querying for drones, and other moving devices that need to locate and coordinate with a central hub
- Investigating the use of a multi-hub and spoke model for allocating scarce resources in a competitive environment using ML models, including Expectation Maximization and Multi-Agent Systems

O.P. Jindal Global University, India
Bachelor of Laws, US Juris Doctorate equivalent (GPA: 3.8/4.0) - Concentration in M&A, Contracts, and Securities

University of California, Los Angeles
Bachelor of Arts, Major in History (Major GPA: 3.7/4.0) - Concentration in Roman & Byzantine History

WORK EXPERIENCE

University of San Francisco - *Teaching Assistant - Machine Learning, Artificial Intelligence* (Aug 2022 – Present)

- Led 100+ Graduate Students over the past 2 years to learn key concepts across Machine Learning and Artificial Intelligence
- Responsible for leading weekly Office Hours, including 1:1 curriculum review and reinforcement through personalized sessions
- Built foundational Neural Networks, Random Forests, and Markov Decision Processes for the program to more effectively teach students practical problem solving
- Computer Science tutor for Undergraduate Student Athletes, resulting in 100% of students achieving their academic goals

KloudDB - *Software Engineer* (Feb 2024 – Present)

- Developed and launched automatic security checks and report generation for Postgres databases that enables clients to find vulnerabilities in their deployments and provides mitigation feedback (generating x hundred recurring downloads per month)
- Built key features to improve the backend framework to register replication clusters, display a topology map and lag statistics
- Developed a tool in Go to automate generation of Postgres configuration settings by reverse engineering popular web-only options
- Building a Go port of Patroni, a popular High-Availability PostgreSQL solution, using etcd for distributed storage of critical data

Openprise, *Software Engineering Intern* (May – Aug 2022)

- Developed an Auto Cloud Deployer for deploying containerized applications to 3 providers: GCP, AWS, and Azure
- Modified deployment process allowed for scalability by deploying to multiple containers, enabling plug-in architecture allows users to add support for more cloud providers. Cut down deployment time by ~75%
- Incorporated team wide SDLC best practices such as version control (git), CI/CD testing & deployment, and Agile

TECHNICAL SKILLS

Programming Languages
Java, Python, Go, C, C++, Rust, Linux, JavaScript, TypeScript, HTML, R

Frameworks, Libraries and Tools
Scikit Learn, PyTorch, TensorFlow, XGBoost, Spark, Hadoop, Protobuf, Mediapipe, OpenCV, Docker, Git, GitHub, Postgres, SQL, MySQL, Velocity, JDBC, Junit, Jetty, Agile Development, Google GCP, Microsoft Azure, Express, React, jQuery, JSON, NS-3, JUnit

SOFTWARE ENGINEER PROJECTS

Auto-Integrate (*OpenAI, GPT-4, AutoGen, Python, Django*) (Aug – Dec 2023)

- Built custom multi-agent frameworks using GPT-4 to scrape documentation and map data between applications.
- Utilized prompt engineering to define the roles of each agent for specific roles, and control output format; roles included semantic understanding, schema analysis and data formatting.
- Used mapping to generate data pipelines and automate data integration. Built an extensive JUnit test suite.

Distributed MapReduce (*Go, Protobuf*) (Jan 2024)

- Developed a coordinator and worker processes that communicate via RPC for parallel execution of Map and Reduce tasks
- Optimized task assignment, fault tolerance, recovery in the event of worker failures, and atomic file renaming for crash recovery
- Achieved synchronization and concurrency control to ensure correct execution of parallel tasks
- Utilized Go's plugin package to dynamically load any 8 MapReduce applications and protofbuf to serialize data

Golf Swing Analyzer (*Python, OpenCV, Mediapipe, PyTorch*) (Jun – Aug 2023)

- Built Neural Networks implementing Computer Vision analysis to detect 32 pose landmarks at 8 key moments to quantify golf swing comparison with PGA Tour pros with support for multiple video capture angles
- Designed a custom ML algorithm to determine closest match by sequentially comparing analogous landmarks

Federated / Distributed Machine Learning (*Python, PyTorch, Rust*) (May – Aug 2023)

- Concurrently trained an ML model on data isolated on 5 dispersed network nodes to safeguard data privacy and achieve accuracy scores within 3-5% of a consolidated model
- Spearheaded the design and execution of a distributed ML system, leveraging training nodes to share model updates with a coordinator node for effective aggregation and redistribution of the learned model