KAUSHIK RAVISHANKAR

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EDUCATION

Arizona State University - Tempe Aug 2023 - May 2025
Master of Science in Computer Science and Engineering | GPA: 3.73 / 4.0
Key Courses: Distributed Databases, Advanced Network Security, Advanced OS, Cloud Computing

College of Engineering - Guindy, Anna University, India Aug 2019 - Jun 2023
Bachelor of Engineering, Computer Science and Engineering | CGPA: 9.12 / 10.0
Key Courses: Algorithms, Computer Networks, OS, Database Systems, Deep Learning

SKILLS

Languages	Python, TypeScript, Bash, SQL, C++, C, HTML, CSS, JavaScript, Java
Tools/Frameworks	React, ExpressJS, Linux, AWS, Docker, TensorFlow, ns-3, Wireshark, OpenAI Gym

EXPERIENCE

Graduate Researcher Jan 2025 - June 2025
Arizona State University, Guide: Prof. Jedidiah Crandall
- Modelled the TCP protocol using high-level Petri nets to enable mathematical analysis of its state machine
- Modified the protocol model to design variants to help achieve censorship circumvention
- Employed CTL checking and Markov chain analysis to formally verify and test performance

Software Developer Intern May 2022 - Jul 2022
RootQuotient Technologies - Chennai, India
- Built user-friendly web applications using ReactJS, ExpressJS, TypeScript, and the Ant Design library
- Implemented a comprehensive admin dashboard for a client's banking application backend
- Resolved persistent bugs and improved API docs, speeding up unit test writing by 10%

PROJECTS

Spotify Playlist Manager | GitHub
- Developed a webapp to add, remove, rearrange tracks in Spotify playlists using the Spotify Web API, and implemented directed acyclic graph data structures and search algorithms
- Built with ExpressJS, ReactJS, PostgreSQL, Docker and deployed on Oracle Cloud VM

Real-Time Internet Traffic Data Analysis | GitHub
- Built an end-to-end ETL pipeline for ingesting and analyzing terabyte-scale Internet traffic traces
- Designed using Clickhouse, Kafka, Grafana, and Docker to achieve autoscaling and fault tolerance

RL-Based TCP Congestion Control and Adversarial Impact | GitHub
- Implemented adaptive TCP congestion control mechanisms using deep Q-learning and PPO neural networks, which were 2% more performant than existing algorithms
- Demonstrated a 40% performance degradation under adversarial attacks
- Utilized ns-3, TensorFlow and OpenAI Gym for simulation and reinforcement learning

Flagship Website for University Techfest | Link
- Designed and developed the flagship website for CEG's nationwide techno-management fest, Kurukshetra
- Built with ExpressJS, ReactJS, PostgreSQL, and deployed on AWS EC2, handling 1000+ DAU for months

EXTRACURRICULAR EXPERIENCE

CEG Tech Forum, Chennai, India Jul 2022 - Jun 2023
- Led a team of 20+ students as the Lead Developer, Sysadmin, and Project Manager of various web apps and technical undertakings, including the university tech-fest's website
- Organized a technology summit on 'AI, Autonomous Systems, and Disruptive Trends' featuring projects by local innovators and keynote speakers from BNY Mellon, Microsoft and more