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Ann Arbor, MI

Agam Kohli

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Education

BSc (Engineering) **University of Michigan** **August 2020 – April 2023**

- Major: Computer Science
- 3.8/4.0 GPA
- Organizations: M-STEM Student Council Board, Michigan Data Science Team, Undergraduate Research Opportunity Program
- Coursework: Static/Dynamic Compilation, OS, ML, DS/Algorithms, CV, Web Systems

Experience

CS Research Fellow **Google** **September 2022 – Present**

- Selected to join competitive 12 week research program by Google Computer Science Research Mentorship Program (CSRMP). I will work 1:1 with a Google mentor on Machine Learning and Compiler research.

AI Fellow **University of Michigan** **August 2022 – Present**

- Accepted into fellowship where I am partaking in a project to fuse the basic safety messages (BSMs) from vehicles with bounding boxes from smart intersections in realtime to potentially reduce unimpaired crashes by 90%.
- Partnering with startup P3 Mobility to deploy our product in Ann Arbor intersections once it is finished.
- Partaking in Entrepreneurship courses with Ann Arbor startups and global treks with high-impact companies in San Francisco, NYC, and DC to discuss leveraging Entrepreneurship with AI.

Cybersecurity Intelligence Intern **Ford Motor Company** **May 2022 – July 2022**

- Automated ThreatConnect tag and attribute source rename, merge, and deletion through Rest API calls and MySQL commands, providing Intelligence analysts valuable insight on detecting malicious campaigns.
- Validated 174 Indicators of Compromise to judge maliciousness of IPs, addresses, domains, URLs, and file hashes reported by the Detection team.
- Undertook the Intern City of Tomorrow project to design a way to improve mobility in urban environments using autonomous vehicles and advanced mobility technologies.

Software Engineer Intern **General Motors** **June 2021 – August 2021**

- Optimized the OnStar Activity Map webapp, reducing vehicle emergency system access time from upwards of a few minutes to nearly instantaneous.
- Designed and created a user interface with Java and JavaScript to allow easier and more intuitive access of vehicle emergency systems. Leveraged Maven for backend build automation and WebLogic for webapp deployment.
- Migrated from using an RDD architecture for fault-tolerance in each data center for our Hadoop cluster to implementing direct HDFS replication, further securing GM data.

ML Researcher **University of Michigan** **Sep. 2020 – April 2021**

- Reduced segmentation time from around 30 minutes per abdominal CT scan using previous technologies to under 5 minutes using Python's Sklearn ML framework and MATLAB for Image Processing.
- Achieved Dice-Sørensen Similarity Coefficient of 54% using U-NET Convolutional Neural Network.

Personal Projects

- **Decaf Static Compiler** – Developed front-end and back-end compiler for toy C-like language, Decaf, using C++. Front-end compiled to TAC IR using Lex/Yacc. Back-end register allocation using Graph Coloring heuristic Chaitin's Algorithm and optimizations using Dead Code Elimination, Common Subexpression Elimination, Forward Copy Propogation.
- **Linux Kernel** – Optimized open-source drivers and kernel modules. 7 pulled commits.
- **Street Fighter II AI** – AI based on Deep Q Reinforcement Learning and Convolutional Neural Network that plays SNES game Street Fighter II. Written using Python frameworks PyTorch for RL and CNN and Gym Retro for emulation. Wins 88% of matches compared to a random model that wins 23% of matches.

Skills

- **Languages** – Python, C, C++, Java, JS, MATLAB
- **Softwares** – LLVM, Lex/Yacc, PyTorch, Git, Bash, Linux, MySQL
- **Certifications** – Scaled Agile Framework (SAFe) 5.0 Practitioner