Aashi Singh

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EDUCATION

University of California, Irvine | ***B.S. Computer Science and Engineering*** **Expected Graduation: June 2025**
Coursework: Artificial Intelligence, Machine Learning, Digital Systems, Information Retrieval, Operating Systems, Computer Networks, Discrete Time Signals, Computer Architecture, Embedded Systems, Compilers and Interpreters

PROFESSIONAL EXPERIENCE

Software Developer| Design and Partnership Lab **January 2024 – Present**
Skills: Python, OpenAI API, Prompt Engineering, Large Language Models (LLMs)

- Collaborating with Chan Zuckerberg Initiative to develop an AI dashboard for evaluating student performance using LLMs.
- Employing advanced prompt engineering techniques, such as few-shot learning, chain-of-thought prompting, to assess ~500 student responses on the AUHSD 5 C's performance rubric with 75% accuracy.
- Creating and refining ~130 domains/subdomains to evaluate diverse student skills based on AUHSD performance criteria.

Software Engineering Intern | **UnitedHealth Group – Optum** **June 2024 – August 2024**
Skills: AWS (Lambda, AppSync, Personalize, Glue, S3, DynamoDB, CDK), Python, React Native, GitHub Actions, CI/CD, ML

- Engineered a next best activity recommendation ML model for UnitedHealthcare Rewards App users using Amazon Personalize, resulting in a 30% increase in user engagement based on preliminary testing.
- Utilized AWS Glue to process and transform over 5 million user data records into clean datasets for model training.
- Built and deployed a GraphQL API using AWS Lambda and AWS AppSync that exposed interaction with the ML model, integrating recommendation data within a frontend proof of concept.
- Implemented a Cloud Development Kit (CDK) to automate infrastructure as code (IaC) creating reusable modules for AWS services, and integrated a CI/CD pipeline with GitHub Actions, which led to a 35% faster deployment cycle.

Software Engineering Intern | **IMD Solutions** **January 2024 – May 2024**
Skills: React Native, TypeScript, Python, Flask, Figma, HTML/CSS, ML, Dexcom API, Firebase, Raspberry Pi

- Developed a mobile application for the Automated Glucose Delivery Device (GlucoGuard), providing a flexible user interface for monitoring nocturnal hypoglycemic episodes and receiving alerts to enhance patient safety.
- Engineered a logistic regression ML model with an average precision score of 93.1% to predict optimal glucose administration times as a preventative measure, leveraging sandbox data from the Dexcom API and Firebase.
- Implemented a Flask server to simulate bluetooth communication on a Raspberry Pi, facilitating device interactions.

RESEARCH

Machine Learning Researcher | **UCI Molloi Imaging Physics Lab** **September 2024 – Present**
Skills: Python, PyTorch, Deep Learning, ML

- Contributing to deep learning-based cardiovascular disease diagnosis through heart chamber segmentation and non-invasive medical imaging techniques.
- Evaluating and improving CyTran, a GAN-based model, for translating contrast and non-contrast CT scans.

Software Development Researcher | **UCI HERO Lab** **September 2024 – Present**
Skills: Python, Deep Learning, AWS (SageMaker, S3), ML, OpenCV

- Developing a deep learning system to reconstruct ECG signals from real-time facial video using cWGANs.
- Leveraging AWS SageMaker for model training, deployment, and experimentation.

PROJECTS

Web Crawler and Search Engine | *Python, C++, Threading, Flask, JavaScript, HTML/CSS*

- Developed the core logic of a multithreaded Python web crawler to index 50,000+ UCI domain pages, increasing crawler speed by 5 times by adding 5 threads to a single-threaded baseline.
- Built a SimHash algorithm to detect duplicates and avoided 80% of crawler traps during deployment.
- Engineered a search engine from scratch with <30ms query response time for 50,000+ pages.

Sudoku AI Solver | *Python, Flask, JavaScript, HTML/CSS*

- Developed an AI system to solve Sudoku puzzles, ranking top 8% among 100+ teams in terms of efficiency/effectiveness.
- Implemented heuristics and backtracking for efficient solution navigation, reducing average solve time by 40%.

SKILLS

Programming Languages: Python, C++, TypeScript, Java, Swift, LISP, Prolog, VHDL, Verilog, RISC-V
Technologies: AWS (Lambda, AppSync, Personalize, Glue, S3, DynamoDB, CDK, SageMaker), React Native, Expo, Flask, PostgreSQL, Docker, Firebase, Git, Linux, Deep Learning, HTML/CSS, Github Actions, CI/CD
Libraries: Matplotlib, Sci-kit Learn, NumPy, Pandas, PyTorch, PyGame, TensorFlow, Threading, Network Protocols, OpenCV