Mehek Mehra

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Software engineer experienced in distributed systems, cloud infrastructure, ML, and AI-driven automation. I enjoy building automations that solve real customer problems, and I'm excited to deliver fast, production-ready solutions that improve reliability, efficiency, and developer productivity.

Skills

Programming Languages: Python, Java, Kotlin, C++, JavaScript, TypeScript, Ruby

Frameworks & Tools: AWS, React, Git, Docker, Linux, Jupyter, SQL, R, Qt, API Development

AI and Machine Learning: Machine Learning, PyTorch, TensorFlow, Cline, Claude

Work Experiences

Software Development Engineer, Amazon Web Services, Seattle, WA   **August 2024 – Present**

The Elastic Block Store (EBS) Placement team optimizes EBS volume placement for durability, performance, and efficiency.

— Designing **capacity-spreading algorithms** using **statistical analysis** to optimize volume placement across server groups to strengthen EBS resilience and reliability for **millions of customers**.

— Implementing custom **AI agents** in **Bedrock** to review code for documentation and style to improve team code quality.

— Built a **Bedrock** knowledge base and integrated it into an **AI-powered chatbot**, accelerating ramp-up for new engineers.

— **Led a multi-team** migration to a secure tooling platform, collaborating closely with internal customers and cross-functional stakeholders to improve reliability for **200+ internal users**.

— Engineered **log tracing and retrieval APIs** using **Kotlin, AWS Lambda, CloudWatch, DynamoDB, and S3**, reducing customer friction and their debugging time by **90%** across services.

Machine Learning Engineer and Team Lead, Inspiren, Clinic Project, Claremont, CA   **September 2023 – May 2024**

— Developed a system to synthesize **10x more machine learning training data** from HIPAA-compliant video, expanding model capabilities while preserving patient privacy.

— Managed a four-person team and **streamlined communication** with professors and stakeholders to ensure project alignment.

— **Fine-tuned** and **evaluated** deblurring and **generative models** to enhance image quality and increase the diversity of training data.

— Built a **backend and visualization UI** using **Qt, AWS, and PyTorch**, accelerating ML model output verification by **90%**.

Software Development Engineer Intern, **Amazon**, Seattle, WA   **May 2023 – August 2023**

— Designed and developed a system using **AWS S3**, **Lambda**, **Athena**, **Spark**, and **QuickSight** to detect bad actors, enhancing security measures and data analysis capabilities for improved threat detection.

Research Experience

Software Developer and Researcher, **Pomona College**, Claremont, CA   **June 2022 – August 2022**

— Designed and implemented new computational tools in **Python** to visualize abstract mathematical groups.

Signal Processing Researcher, Claremont Graduate University, Claremont, CA   **February 2022 – June 2022**

— Implemented novel signal processing algorithms in **MatLab** to improve the performance of **machine learning tasks** on audio.

Education

Bachelor of Science, Joint Major in Computer Science and Mathematics, High Distinction   **Graduation:** May 2024

Harvey Mudd College, Claremont, CA – **Graduation:** May 2024   **GPA**: 3.85

Leadership Experiences

Grader and Tutor, **Harvey Mudd College**, Claremont, CA   **August 2021 – May 2024**

— Supported over 40 students in understanding Algorithms, Computability and Logic, Linear Algebra, and Differential Equations.

Dorm President, **Harvey Mudd College**, Claremont, CA   **August 2023 – May 2024**

— Represented a dormitory of 120 students in Student Government and organized events to positively build community.

Senior Admissions Intern, **Harvey Mudd College**, Claremont, CA   **August 2023 – April 2024**

— Organized prospective student events for over 100 students by coordinating with student groups and staff.