Sanjana Shah

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EDUCATION

Arizona State University August 2022 - December 2023
Master of Science with Thesis, Computer Science *GPA: 4.0*

- **Master's Thesis**: Modeling Spatial Competition and Therapy Protocols in Three-Dimensional Vascularized Cancers
- **Graduate Teaching Assistant**: Data Structures and Algorithms (CSE 310)

Arizona State University August 2019 - December 2022
Bachlor of Science, Computer Science *Summa Cum Laude, GPA: 4.0*

- **Achievements**: Moeur Award (for 4.0 GPA), Dean's List for all semesters, New American University Scholar
- **Undergraduate Teaching Assistant**: Object-Oriented Programming in Java (CSE 205), Introduction to Programming in C++ (CSE 100)

EXPERIENCE

Amazon Seattle, WA, USA
*Software Development Engineering Intern - **Review Analytics Backend*** *May 2023 - August 2023*

- Designed and implemented a ticketing service that performs fault localization and ticket routing using **AWS Step Function**, **Lambda Function**, and **EventBridge Pipes** with input filtering, decreasing per-ticket handling time per software developer by 5 minutes while providing 4 customer teams faster access to their infrastructure-related tickets.
- Interfaced with 8 stakeholders (software developers and data scientists) and aggregated their business needs using prototypes.

Amazon Seattle, WA, USA
*Software Development Engineering Intern - **Review Analytics Backend*** *May 2022 - August 2022*

- Developed a monitoring and analysis service that characterizes logs from 6 existing team services for system health analysis.
- Designed and implemented **AWS Step Function** and **EventBridge** workflow for event-based orchestration.
- Built the infrastructure to be modular using **Simple Notification Service** and **DynamoDB streams** for integrating additional services.

Amazon Seattle, WA, USA
*Software Development Engineering Intern - **Buy with Prime Full-Stack*** *May 2021 - August 2021*

- Developed a full-stack (Frontend: **React** and **TypeScript**, Backend: **Java**) debugging tool for more than 200 software developers.
- Collaborated with 15 UX designers and security engineers to decide the website design and security policies using **AWS IAM** roles.
- Interfaced with 5 stakeholders (software developers and project managers) and gained design consensus through iterations of UI mockups.

RESEARCH

Modeling Adaptive Therapy in Cancer Tempe, AZ, USA
Graduate Researcher *January 2023 - Present*

- Developed and employed the **agent-based model** "CancerSim" in **C++** for simulating and analyzing the impact of different drug routine on existing cancer treatment strategies and expanded on interdisciplinary research in collaboration with 3 research labs.
- Developed a **Python** and **R**-based pipeline automating experimentation, data analysis, and 3D visualization on trial data, saving researchers 3 hours per week previously spent on manual tasks.
- Optimized simulator efficiency by reducing run-time by 10%, concurrently enhancing accuracy, achieved through refined mathematical modeling of cancer progression processes and precise biological calibrations grounded in existing oncology research.

SKILLS AND COURSES

Skills: REST API, Computer Vision, Data Logging, Agile, AWS, Data Analysis, Data Structures and Algorithms, Heroku, JavaScript, Jest, Git, HTML/CSS, Java, Linux/Unix, C/C++, NumPy, Postgres, SCRUM, MailChimp, Python, TypeScript, Video Editing, Web Development, Software Testing, SQL, SpringBoot, d3, React, Linux/Unix, JSON, IntelliJ, Eclipse

Courses: Data Structures, Algorithms in Computational Biology, Data Visualization, Machine Learning, Database Management, Human-Computer Interaction, Software Security, Applied Cryptography, Combinatorial Algorithms and Intractability, Software Engineering, Statistics, Data Science, Object Oriented Programming (OOP), Computer Graphics

TECHNICAL PROJECTS

Capstone Project: *Time-Based DEVS-Suite Visualizer*
Developed a full-stack **SpringBoot** application (Frontend: **JavaScript** and **D3.js Library**, Backend: **Java**) to extract logs of discrete event simulation time-stamped data (DEVS) stored in a **Postgres** database and visualize them using piecewise-constant and time-based event charts.

Team Project: *Perception of Violence against Women across the Globe*
Inspired by women's rights protests in Iran, we created an interactive data visualization system in **JavaScript** and the **D3.js Library** to analyze trends of oppression against women through scrolly-telling and interactive demographic plots.