Christopher Eliot Hall

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Education

San Jose State University **August 2023 - May 2027**

Bachelor of Science in Computer Science *GPA: 4.00/4.00*

Coursework: Advanced DSA, Operating Systems, Computer Architecture, Formal Languages and Computability

Organizations: ACM @ SJSU, ML Club, Software and Computer Engineering Society, ICPC, University Rover Competition

Awards: 3rd place, IEEE NASC; 12th place, ICPC PACNW; 2nd place, IBMZ Datathon; Top 50, TCS CodeVita; Leetcode Guardian :3

Work Experience

San Jose State University **October 2023 – Present**

Research Assistant - Explainability + NLP *San Jose, CA*

- Collaborate with Dr. Vishnu Pendyala to explore explainability techniques and their applications to LLMs
- Conceptualize and validate experiments using self-prompting open-source LLMs to evaluate the importance of prompts
- Developed and ran experiments for a recently published paper on LLMs and misinformation containment published by MDPI

Roblox **May 2025 – August 2025**

Software Engineering Intern *San Mateo, CA*

- Cut max Flink job processing lag from 24hr to 32m during automated patches by customizing k8s drains and coordinating evictions
- Powered root cause analysis and bottleneck detection by building an in-house observability and lineage service for Airflow and Spark
- Enabled natural-language debugging of Spark and Airflow jobs by building an MCP server exposing observability and lineage tools

eGain Corp. **May 2024 – August 2024**

Software Engineering Intern *Sunnyvale, CA*

- Spearheaded a new R&D team of four developers to modernize existing apps and rapidly prototype new Generative AI products
- Slashed LLM costs by 30x and wait time by 10.5x on a data-sensitive internal app by ensembling open-source and fine-tuned models
- Prototyped a full-stack future product, creating a distributed, high-reliability application deployed on AWS

Project Experience

Course Scheduler | *Python, Typescript, Postgres, Redis, Docker, Kubernetes, Terraform* **September 2024 – Present**

- Streamlined the course enrollment process for 100+ students at SJSU by consolidating schedules and reviews into a single app
- Significantly improved cross-platform development experience by containerizing the backend and frontend with Docker
- Designed a low-latency, high-throughput system by using a Redis cache and autoscaling the backend with Terraform and Kubernetes

University Rover Competition | *Python, OpenCV, Computer Vision, Object Detection, ROS* **September 2023 – Present**

- Pioneered a fully autonomous navigation system based on individual Python services on- and off-board the rover
- Achieved real-time obstacle avoidance by fusing a stereo camera with a quantized YOLO model
- Implemented a heuristic-based version of VSLAM to enable camera-only navigation with on-board resources

minify-C | *C/C++, Languages and Grammars, Clang, CI/CD* **December 2024 – March 2025**

- Published a command-line utility to decrease C program sizes by more than 3x on average by meta-golfing C code
- Minified variables by traversing the AST from the parser generated by a hand-crafted parser-generator
- Further minimized code size by extending Clang, replacing repeated tokens with defines, and minifying struct fields

Verilog Language Server | *Golang, Languages and Grammars, Typescript, CI/CD* **October 2024 – November 2024**

- Launched a VSCode extension with 100+ downloads to add intellisense support for Modelsim's dialect of Verilog
- Reverse engineered the EBNF grammar, validated it on thousands of lines of code, and implemented a custom parser
- Implemented a blazingly fast language server by caching parse results, adding cancelable requests, and minimizing copy operations

Stanford Ribonanza RNA Folding Competition | *PyTorch, Linux, Bioinformatics, Python* **October 2023 – December 2023**

- Outperformed 700+ teams and won a silver medal by modeling RNA 3D structures with less than 0.2 MAE
- Reduced model MAE by over 50% by writing a custom transformer in PyTorch and parallelizing our training loop
- Designed a 75% faster data preprocessing pipeline to extract meaningful features, further reducing model MAE

Technical Skills

Languages: C/C++, Python, Golang, Java, Rust, Javascript, Kotlin, Swift
Databases and Storage: Postgres, Druid, Redis, S3, MySQL, MongoDB
Frameworks: Kubernetes, Terraform, Spark, Airflow, Kafka, Flink, Flask, FastAPI
Developer Tools: Linux, Clang, CMake, Git, CI/CD, Grafana,