Ryan Lin

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EDUCATION

California Institute of Technology · Pasadena, CA
B.S. Computer Science *GPA: 4.0* · Sep 2023 - Jun 2027

Relevant Coursework: Machine Learning & Data Mining, Learning Systems (Machine Learning), Data Structures, Mathematical Foundations of Computer Science (Discrete Mathematics), Calculus of One and Several Variables and Linear Algebra, Differential Equations, Algorithms, Introduction to Probability & Statistics, Introduction to Computer Programming

EXPERIENCE

Caltech - Anima AI + Science Lab · Pasadena, CA
Student Researcher · Oct 2023 - Present

- Tuned hyperparameters lol for neural operator models to improve performance in solving PDEs (ex. Burgers' Equation).
- Improving code quality and flexibility of the neural operator repository.
- Configured development environment to interface with High Performance Computing (HPC) cluster for training large models.

The MITRE Corporation · San Diego, CA
Software Development & DevSecOps Intern - Security Automation Framework (SAF) · Jun 2023 - Sep 2023

- Engineered an end-to-end DevSecOps pipeline for SAF using applications, libraries, and tools developed by MITRE and the security community. Hosted pipeline on EC2.
- Automated pipeline for key tasks (hardening, validation, visualization) to inform platform owners of security risks and accelerate capability deployment in development, test, and production environments.
- Presented and demonstrated the prototype pipeline directly to sponsors, articulating intricate technical details while highlighting its operational benefits and simplicity.

Software Engineering Intern – Full-Stack Application Development · Jun 2022 - Sep 2022

- Developed an initial, modern reimplementation for STIGViewer within Heimdall (a full-stack application for viewing security results). The backend uses PostgreSQL, JavaScript, and Typescript. The frontend uses Vue and Typescript. [Github](#)
- Expanded the enterprise capabilities of Heimdall, a flagship application within the SAF, and validated/tested server-side Rest API calls to the Heimdall PostgreSQL database. [Github](#)

Software Engineering Intern - Open Source Tools · Jun 2021 - Sep 2021

- Authored the SAF CLI (Command Line Interface), a software that streamlines security automation for IT Systems and DevOps pipelines. The tool has over 25,000 downloads by the security community. [Github](#)
- Created and published libraries to normalize outputs from various cybersecurity scanning tools into Heimdall Data Format (HDF) for various government sponsors and commercial partners. [Github](#)

SKILLS

Programming Languages: Java, Python, Typescript, JavaScript, R, Ruby, C, C++, HTML/CSS, Shell Script, Batch

Developer Tools & Practices: PyTorch, Jupyter, Weights & Biases, SLURM, GitHub, Android Studios, AWS, Brew, Bash/Shell, Docker, Eclipse, Firebase, NodeJS, VSCode, PyCharm, RStudio, PostgreSQL, Jenkins, Vuex, Chef, Ansible, Continuous Integration (CI)

PROJECTS

Comparison of Classical and Quantum ML Models
Explored structural and mathematical parallels of a Convolutional Neural Network and a Quantum Circuit. Implemented a hybrid quantum/classical binary classification model using Pennylane and TensorFlow.

Stock Prediction Using LSTMs With Sentiment Analysis
Implemented a multivariable LSTM model in R to predict the trajectory of any given ticker. Notable considered variables include previous time series data and a sentiment analysis on news headers.

Y86 Architecture Simulation
Programmed and implemented a simulator of a processor and assembler. [Github](#)