

RYAN LAM

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EDUCATION

University of Waterloo

Bachelor of Science; Honours Physics & Computing Minor

September 2020 – April 2025

Waterloo, Ontario

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, TypeScript, HTML, CSS, C, Racket

Frameworks: Node.js, Express.js, React.js, Jest.js, Cypress, Django, Flask, FastAPI

Libraries: Apollo, Graphene, NumPy, SciPy, SymPy, Matplotlib, Pandas

Databases: SQL, NoSQL, SQLite, MySQL, PostgreSQL, SQLAlchemy, Prisma, Cloud Firestore, Cloud Storage

Tools: Git, Postman, Terraform, Docker, Kubernetes, Bash, GraphQL, Jupyter Notebook, AWS, Linux

EXPERIENCE

Autonomic

January 2023 – Present

Software Engineer Intern, DevOps Team

Palo Alto, California

- Helped develop an internal API with multi-threaded daemon processes to analyze over 200k Git commits across 7 GitHub repositories and utilized multiprocessing to reduce compute time by 80%
- Worked with senior engineers to deploy a StatefulSet application with a PersistentVolumeClaim using Docker, AWS ECR, Kubernetes, Helm, Tekton, and ArgoCD

Midnight Sun Solar Car Design Team

September 2022 – Present

Software Developer, Strategy Team

Waterloo, Ontario

- Proposed and designed the system architecture of the solar car's real-time simulation program using decoupled services and schedulers, resulting in a 75% performance increase and a 50% reduction of system integration issues
- Reduced manual data collection by 80% through the development of an algorithm that interpolated WGS-84 coordinates and determined the distance, bearing, and relative turning direction of the interpolated coordinates
- Currently working with the electrical team to research and devise algorithmic methods to estimate the state-of-charge of the solar car's battery pack in real-time

Epoch

September 2022 – December 2022

Software Engineer Intern

San Francisco, California

- Implemented a workflow using GraphQL, SQLAlchemy, Flask, and React.js to allow users to modify and manage scheduled Slack and Google Calendar notifications within the web app
- Tracked user engagement and reduced table query sizes using SQLAlchemy and PostgreSQL, resulting in the additional collection of user engagement data while reducing query execution time by 70%
- Wrote permission handlers in the backend to disable app functionalities based on the user's permissions
- Worked with the design and product team to bring 50+ UI/UX improvements into the web application

JamLabs Data Science

January 2022 – April 2022

Software Test Engineer Intern

Toronto, Ontario

- Increased test coverage from 5% to 50% by creating and implementing end-to-end test suites using Cypress
- Analyzed and documented over 60 end-to-end tests via stress testing to optimize runtime and to detect test flakiness
- Designed and integrated CI/CD pipelines to create test environments, seed databases, run end-to-end tests, and destroy test environments using Terraform, GitHub Actions, and AWS (Lambda, DynamoDB, S3)
- Created a proof-of-concept function for Cypress to use a Node.js process and AWS SDK to upload to an S3 Bucket

PROJECTS

Fast Fourier Transform Image Compressor | Python, NumPy, Matplotlib

July 2022

- Compressed images using discrete Fourier transforms on 32x32 pixel sub-blocks for varying drop tolerances
- Computed the Fourier coefficients (FFT2) for each 32x32 pixel sub-block, removed coefficients that were lower than the drop tolerance, and computed the inverse Fourier coefficients (IFFT2) to get the compressed image
- Compressed images to 50%, 30%, 15%, and 5% of their original sizes

ClassAI (PolyHacks 2022 Winner) | JavaScript, Express.js, Node.js, Vue.js, Tailwind CSS, Firebase

February 2022

- Built a classroom platform that allows teachers to upload video lectures and timestamps important sections in the lecture
- Automated a workflow to upload lectures in Firebase's Cloud Storage and to create signed URLs for third-party APIs
- Designed the backend using Express.js and a NoSQL database using Firebase's Cloud Firestore