Ryan Lam

r45lam@uwaterloo.ca || linkedin.com/in/ryanlam285 || github.com/ryan-lam || ryanlam.ca

Technical Skills

Programming Languages: Python, JavaScript, TypeScript, HTML, CSS, C, Racket
Frameworks: Node.js, Express.js, React.js, Jest.js, Cypress, Django, Flask
Libraries: Apollo, Graphene, NumPy, SciPy, SymPy, Matplotlib, Pandas
Databases: SQL, NoSQL, SQLite, MySQL, PostgreSQL, SQLAlchemy, Cloud Firestore, Cloud Storage
Tools: Git, Postman, Terraform, Docker, Bash, GraphQL, Jupyter Notebook, AWS, Linux

Experience

Autonomic **January 2023 – Present**
Software Engineer Intern *Palo Alto, California*

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
- 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 collecting additional user engagement data while reducing query execution time by 70%
- Worked with Quill.js and RegEx to parse user-generated content for various channels (Google Calendar, Email, Slack)
- Updated 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

Education

University of Waterloo **September 2020 – April 2025**
Bachelor of Science; Honours Physics & Computing Minor *Waterloo, Ontario*