Eugene Lee

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EDUCATION

University of Waterloo — Expected April 2027
B.A.Sc. in Computer Engineering, Quantum Engineering Specialization

EXPERIENCE

Backend Developer | *University of Toronto* — *Toronto, ON | Sept 2024 – Dec 2024*
- Converted a monolithic API into **microservices**, reducing database load by **40%** by cutting redundant queries
- Implemented security protocols using **OIDC** and **OAuth 2.0**, ensuring secure access for **60,000+** students
- Deployed **Docker** microservice containers to **Azure Resource Groups**, cutting environment setup times by **50%**
- Migrated legacy mainframe code to **Node.js** and **TypeScript**, improving maintenance and execution speed by **25%**

Junior Application Developer | *University of Waterloo* — *Waterloo, ON | Jan 2024 – Apr 2024*
- Developed course management API using **ASP.NET** and **C#**, streamlining data workflows with CRUD operations
- Led redesign of a module using **Figma**, cutting design iteration time by **50%**, improving decision-making efficiency
- Integrated **React** components with **ASP.NET** backend APIs to auto-populate course information, reducing the number of manual fields by **30%** and cutting staff input time by **25%**

Software Engineer Intern | *Foqus Technologies* — *Waterloo, ON | May 2023 – Aug 2023*
- Developed backend services using **Nest.js**, implementing CRUD operations to manage job-related data
- Applied **service workers** for background synchronization of medical information, reducing page load times by **30%**
- Cached frequently accessed data in **local storage**, reducing database calls and improving load times by **25%**
- Identified and supplied **DICOM** medical datasets used to train and fine-tune AI models, supporting the team's **quantum-algorithm-driven** solutions

Software Engineer Intern | *CyberFilm* — *San Francisco, CA | May 2023 – Aug 2023*
- Developed a storyboard page, allowing users to create and manage scenes with **React** and **Redux**
- Implemented an auto-save feature using **Firebase**, reducing risk of data loss and improving user satisfaction by **10%**
- Integrated **DALL-E** for real-time image generation, automating scene visualization based on user inputs
- Optimized prompt engineering through **A/B testing**, improving image accuracy by **20%** by refining model configurations for different camera angles and lighting conditions, resulting in annual savings of up to **$10,000**

PROJECTS

NVRS — *Go, Python, Autogen, PineconeDB, Langchain, Docker, Kubernetes*
- Implemented a **Go**-based backend gateway to dynamically route user prompts to the appropriate AI agent, enhancing personalized interactions and task automation
- Developed multiple AI agents using **Autogen** and **Llama 3.1**, including specialized agents for finance, health tracking, and personal tutoring, to assist users across various personal apps
- Integrated AI agents into personal applications to automate tasks like habit tracking and financial advising, using **Python** and **FastAPI** to streamline backend services and AI functionality

Estia — *React, Typescript, Redux, Express, Node*
- Built a **React** profile page as a personal portfolio for users, supporting **50+ monthly active users**
- Architected the backend using **Express** with **Swagger-Autogen**, restricting access to endpoints defined in autogenerated **Swagger YAML** files, reducing unauthorized access and cutting integration errors by **30%**

SSYPHS — *Next.js, PostgreSQL, AWS, TailwindCSS*
- Built a Group Habit Tracking App with **Next.js App Router**, enabling real-time habit updates
- Integrated **NextAuth.js** with a custom mailing service using **UUID** and **nodemailer** for secure user invites
- Hosted a **PostgreSQL** database by provisioning a database instance on **AWS**, ensuring reliable data management

SKILLS

Languages: TypeScript, JavaScript, Python, Java, C/C++, C#, Go, HTML, CSS, SQL
Frameworks: React, Node, Express, Nest.js, Redux, .NET, Autogen, Langchain
Tools: Docker, Kubernetes, AWS, Azure, Firebase, Anaconda, Figma, Git, MATLAB