SAMUDRA PERERA

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Education

University of Waterloo — **Dec 2026**
Master of Systems Design Engineering — *Waterloo, ON*

University of Waterloo — **May 2021**
Bachelor of Civil Engineering — *Waterloo, ON*

Experience

Spingle.ai — **May 2024 – Dec 2024**
Software Engineering Intern — *Toronto, ON*

- Deployed a Node.js microservice to GCP that monitored application crashes and automatically sent detailed log files to a debugging email server, which improved error reporting and diagnostic accuracy.
- Updated all dependencies, including migrating to React 18, Webpack 5, MUI v5, Firebase v11, and refactoring associated code resulting in a 7% reduction in build size, and a 12% performance improvement.
- Developed and shipped an over-the-air update feature to all users, eliminating the need for manual updates.
- Designed and Developed an MVP for a prompt-to-edit feature using Gemini 2.0 enhancing product usability.

Pod — **Jan 2024 – Apr 2024**
Software Engineering Intern — *Remote*

- Migrated components to Mantine UI in a TypeScript codebase, enhancing the design system and facilitating a smooth upgrade from Pod 1.0 to Pod 2.0, which improved user experience by providing a more consistent interface.
- Configured and implemented Storybook for a custom component library built with Mantine, enabling easier testing and documentation of reusable components, which streamlined the development process.
- Refactored the codebase, reducing lines of code by 20%, which led to increased maintainability and improved application performance.

Spingle.ai — **Jan 2023 – Aug 2023**
Software Engineering Intern — *Toronto, ON*

- Developed a Python-based internal tool for hot reloading the core application, which streamlined the development process saving 3 hours weekly.
- Refactored the entire user interface by migrating from inline styles and CSS to Tailwind CSS by building custom components and interactions in TypeScript improving the user interface.
- Developed a custom referral program to automate email campaigns and reward distribution.
- Developed a React landing page from concept to launch, resulting in over 1000 beta tester sign-ups.

WSP — **May 2021 – Dec 2021**
Building Science Consultant — *Toronto, ON*

- Led engineering evaluations, budget reviews, and contract administration for construction projects, saving clients over $500K by ensuring cost efficiency and timely completion.

Projects

End-to-End Custom YOLO Model Training & Deployment | *Python, PyTorch* — **2025**

- Built and optimized a YOLO object detection model, leading data collection, annotation, augmentation, model training, and real-time deployment with optimizations like quantization and pruning.

Multithreaded Urban Surveillance Optimization Tool | *Python, C++* — **2024**

- Developed a multi-processing system using Python for data processing, C++ for shortest path calculations, and SAT for computing the minimum vertex cover for real-world urban networks.

UofT Climate Hacks Winner | *Python* — **2024**

- Built a climate forecasting model in Python for the City of Toronto using observed data and global climate models.

Technical Skills

Languages: JavaScript, TypeScript, Python, C++, C, Go, SQL, HTML, CSS, Matlab
Developer Tools: Git, Postman, GCP, AWS, Storybook, Figma, GraphQL, Jest, Webpack
Technologies/Frameworks: React.js, Node.js, Next.js, Express.js, Redux, Jest, Flask, PyTest, REST, MongoDB, PostgreSQL, Firebase