Aaron Spence

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Education

BASc Computer Engineering — Expected April 2025
University of Waterloo — *3.9/4.0 GPA*

Skills

Languages: Java, Kotlin, Python, JavaScript, TypeScript, HTML/CSS, SQL, NoSQL
Frameworks: Spring Boot, Node.js, Express, Flask, Angular, React, Bootstrap
Technologies: MySQL, PostgreSQL, MongoDB, Git, GitLab CI, Gradle, Docker, Kubernetes, Terraform, AWS, Linux
Courses: Distributed Systems, Databases, Networks, Real-time OS, Machine Learning, Data Structures and Algorithms

Work Experience

Software Developer Intern — Sep 2024 - Dec 2024
Miovision *- Computer Vision Team* — *Waterloo, ON*

- Spearheaded the development of a new frontend interface for traffic-lane geometry and detail configuration using **Typescript**, **Angular** and **D3**, driving the company's top-priority initiative of providing lane separated traffic studies.
- Engineered a **Node.js** tool to concurrently download time sensitive videos from devices and merge, crop and upload them, optimizing the process and saving the Data Services team **4 weeks** on a single key client's traffic study alone.
- Developed dashboards using TypeScript, Angular, Python and Flask to assess computer vision performance.
- Created hard-mined datasets using developed **Python** tools to assess/improve multi-object tracking performance.

Software Developer Intern — Jan - Apr 2024 & May - Aug 2023
Miovision *- Platform Team* — *Waterloo, ON*

- Developed microservices for the new platform using **Java**, **Kotlin**, **Spring Boot**, **MySQL**, and **Postgres**, deployed on **AWS** with **Kubernetes** and **Terraform**, enabling product teams to deliver scalable, high-quality software faster.
- Engineered a Kubernetes Client Library and backend APIs to manage asynchronous signal optimization jobs, enabling cloud deployment of the signal optimization engine and securing **$1.1 million** in SDTC funding.
- Built a PostgreSQL schema and Java Spring Boot data layer, managing notification preferences of **20,000+** users.
- Implemented a Java Spring Boot **REST API** to populate **Kafka** topics, integrating with a **Snowflake** dynamic table provisioned via Terraform to enable real-time logging of important user events within the platform.

Software Engineering Intern — Sep 2022 - Dec 2022
Ford Pro *- Search and Locate Team* — *Oakville, ON*

- Developed and deployed the initial Charger Locator app using **JavaScript**, **React** and **Express**, enabling users across North America to locate charging stations and advancing Ford's $22 billion EV transition initiative.
- Led an initiative to achieve **100%** test coverage across the Charger Locator, Dealer Locator and Search Bar apps owned by my team using **Jest** and **Cypress**, and resolved all critical bugs identified through testing.
- Contributed to code reviews and design discussions in an **Agile** environment using **Jira** for task management.

Operations and Services Intern — Jan - Apr 2022 & May - Aug 2021
Nova *- Services Team* — *Oakville, ON*

- Designed and implemented custom ad templates and layout logic using **HTML**, **CSS** and **JavaScript** along with resolving template errors in live environments to ensure successful delivery of ads to high value publisher partners.

Projects

Fleet Vision | *Python, Flask, TensorFlow, OpenCV, TypeScript, React, MongoDB, C++*

- Built a platform enabling fleet managers to view real-time driver behavior and long-term driver safety analytics.
- Engineered a server using **Python** and **Flask** to process **30 FPS** camera streams, classify driver behavior in real time, forward annotated frames to the **React TS** frontend, and store results in **MongoDB** for trend analysis.
- Trained distraction and drowsiness models on **300GB+** data with **TensorFlow**, achieving **90%+** validation accuracy.

CineBase | *MySQL, Python*

- Designed a **MySQL** database schema with **20** tables to store diverse properties for over **50,000** movies, loading unstructured data using MySQL and Python scripts into the created database to support efficient querying.
- Created a **Python** application for users to perform advanced queries and manage personalized movie ratings.
- Leveraged data mining to reveal that budget (**66.5%**) and production company (**23.5%**) most impact movie revenue.