

CURTIS FRANZ

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SKILLS

Languages: Python, JavaScript, Java, TypeScript, SQL, C / C++, C#, Swift, Go (golang)

Frameworks & Libraries: React / Redux, Angular, Next.js, Django, .NET / Blazor, PyTorch, OpenCV

Tools: Git, Docker, Linux, Bash / Shell, PostgreSQL, MongoDB, PyTorch, Unity, Azure, AWS (DynamoDB, Kinesis)

EDUCATION

University of Waterloo

Sept 2020 – Apr 2025

B.A.Sc. in Systems Design Engineering (Candidate)

- **Coursework:** Object Oriented Programming, Data Structures & Algorithms, Machine Learning, Image Processing

WORK EXPERIENCE

Miovision | Kitchener, ON

Software Engineer, Device Platform

May – Aug 2024

- Engineered a traffic controller proxy with **C++** and **Go** to capture traffic light cycle data from 1000+ intersections across North America for advanced traffic analysis
- Led the redesign and future-proofing of a **Kafka**-based telemetry pipeline, leveraging **Avro** serialization to support evolving traffic controller standards, improving system scalability and data reliability
- Created networking tools using **REST APIs** and **Node.js** to streamline device configuration and monitoring

Software Engineer, Device Platform

Jan – Apr 2023

- Implemented core features of a full-stack **Angular** application for a flagship smart-traffic device, facilitating traffic studies and video data collection, with a **Node.js** backend enabling seamless **firmware** communication
- Developed a **Node.js** and **PostgreSQL**-based metric collection service for 4000+ smart traffic devices, providing real-time health and performance insights
- Designed a web app using **Angular** to update build versions on deployed devices, reducing update time by 20%

Christie Digital Systems | Kitchener, ON

Systems Engineer, Advanced Research

Sept – Dec 2023

- Designed and deployed a **projector-LiDAR-camera** calibration system for a mobile projection mapping robot using **C++**, **OpenCV**, and advanced optimization techniques on an **Nvidia Jetson Nano** with **Docker**
- Built a real-time projection mapping application in **C++**, integrating **LiDAR**-based 3D scene reconstruction (**Unity**, **C#**), remote procedure calls (**RPC**), and **MongoDB** for efficient data handling
- Developed a **React** and **Node.js** control interface with **WebSockets** and **MongoDB**, enabling remote robot navigation, calibration adjustments, and real-time spatial visualization

Advanced Building Innovation Company | Ottawa, ON

Software Developer, Systems

May – Aug 2022

- Designed and implemented a **.NET (C#)** payment app, with the Moneris API, processing 100+ monthly transactions
- Spearheaded the development of reusable UI component and core services library, accelerating application development and enforcing consistency across projects
- Built a **PostgreSQL**-backed property management application with intelligent search using **Blazor (C#)** and **JavaScript** based on feedback from the home design associates to reduce search time by up to 50%

PROJECTS

DashMap | [See Live](#)

github.com/ckfranz/dashmap

- Map-based web app for visualizing GPS-tracked sports activities and performance metrics, leveraging Strava's API
- **Tech Stack:** JavaScript, HTML/CSS, Node.js, Strava API, Leaflet

RePose

github.com/ckfranz/kemt-klrs

- Computer vision-powered physiotherapy tool that provides real-time exercise guidance in a user-friendly application
- **Tech Stack:** Python, OpenCV, Arduino, Java, Kotlin, JavaScript, HTML/CSS

Interests: Running, Cycling, Hiking, Climbing, Camping, Piano, [Woodworking](#), [Reading](#)