Andrew Zaki

Portfolio

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Programming Skills

- **Languages**: Python, C++/C#, Typescript, JavaScript, Swift, SQL
- **Technologies**: Tensorflow, Pandas, .NET, React, MySQL, Docker, Django

Experience

- **Magna International** — Aurora, ON
  Software Developer — Jan 2024 - Present
  - Developed Real-Time **Object-detection** ML models with **TensorFlow** for classification that sorted parts into designated bins with a **90%** success rate, reducing need for manual sorting.
  - Led **Full-Stack** development of a multi-zone robotic sanding and polishing system, cutting per-part processing time by **30 seconds**.
  - Reduced data transfer latency between Robotic system by refactoring **C++** & **Python Back-End** servers
  - Restructured **SQL** database schemas and indexes, and **refactored queries** to reduce execution time from **seconds to milliseconds**.
- **Magna International** — Aurora, ON
  Software Developer Intern — May 2023 - Dec 2023
  - Developed **Full-Stack** inspection cell, integrating a 3D scanner on a robotic arm to validate part geometries against **CAD** models, eliminating the need for manual measurements.
  - Designed a user-friendly **Front-End** for a collaborative robotic sanding system, simplifying task selection, **error handling**, and reducing operator training time.
  - Automated report generation with **Python**, integrating **PolyWorks** to generate analysis reports.
  - Built **real-time** dashboards with **Grafana** and **Power BI**, displaying OEE, cycle time, and downtime on robotic cell UI's.
- **FCT** — Oakville, ON
  Software Engineer Intern — May 2022 - Dec 2022
  - Developed **C++** secure data transfer API for integration with large scale bank clients (**TD** and **RBC**).
  - Ensured Stability of **JavaScript** web app by implementing and maintaining comprehensive **unit tests**.
  - Managed **cross-functional** team project ensuring collaboration between developers, designers, and supervisors while tracking tasks and milestones.

Education

- **University of Waterloo** — Waterloo, ON
  Bachelor of Computer Science — Sep. 2018 – Aug. 2024

Projects

- **Computer Vision Pick-and-Place System** Designed a robotic system leveraging **deep learning** and **3D image** processing to scan parts, perform **defect detection**, and accurately position valid parts on the factory line, enhancing automation precision.
- **Notes Desktop Application** A group project built using **Kotlin**, **Gradle** and **JavaFX**, with an **SQLite** database, to create a note taking application that brought advanced features, while keeping a clean UI