Robert Xing

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SUMMARY

I am a software engineering student with experience in open-source development, building full-stack applications with the MERN stack, RESTful APIs, UI/UX design with Figma and converting designs into websites with React and native HTML. Recently, I worked on the FlyByWire A32NX airliner for Microsoft Flight Simulator (MSFS), where I focused on avionics programming with the MSFS Avionics Framework (a React-like framework based on Typescript and JSX).

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EDUCATION

University of Western Ontario (UWO) **London, ON**
Bachelor of Engineering Science – BESc, Software Engineering *Sep 2022 – Apr 2027*

- **Academics**: Cumulative GPA: 3.9/4.0, Western Scholarship of Distinction
- **Activities & Societies**: Western Founder's Network, Western AI, 'Overhaul' Web Dev Case Competition Winner

LANGUAGES & TECHNOLOGIES

Languages: Python, Java, C++, HTML, CSS, Javascript, Typescript, SQL, Processing
Technologies: React, Node, MongoDB, Express, Docker, Git, Figma

PROJECTS

FlyByWire A32NX
Typescript, Javascript, Docker, Git
FlyByWire is an open-source development group bringing high fidelity Airbus A320neo and A380-800 aircraft to Asobo's Microsoft Flight Simulator. The A32NX project is responsible for the former, and its systems were originally created using React, CSS, and Javascript. Recently, Asobo released the Typescript-based MSFS Avionics Framework, and the bulk of development work now consists of converting legacy systems to the new framework. Other major tasks include standardizing systems shared with other development teams, along with regular maintenance and bug fixes.

- Compiled technical data and references from tickets to accurately implement real-world aircraft systems and behaviour
- Cross-referenced data and reports with manufacturer documentation, handbooks, type-rated pilots and aircraft engineers
- Implemented cockpit displays and instrument panels using legacy Javascript and the Typescript avionics framework
- Programmed flight computer logic using MSFS's provided SDK and custom in-house utilities for additional realism
- Participated in code reviews with senior contributors and QA testers, concluding the development lifecycle for each ticket

StrongArm
Arduino, C++, Flask, OpenCV, Processing
StrongArm is a computer vision-automated gantry crane. It used a downward-facing camera to detect target objects, which were highlighted and displayed to the crane operator. The operator would select a target and authorize the pickup after which the crane would maneuver directly overhead the selected target and lower an electromagnet to pick it up. From there, the operator would then instruct the crane to maneuver to a dropoff location, and then release the object.

- Implemented computer vision model from OpenCV to identify target objects with a 100% success rate in testing
- Programmed an Arduino to control crane movements based on computer vision returns and operator authorization, successfully picking up test targets in 90% of trials
- Built operator GUI using Processing G4P GUI library, with the automation allowing for a focus on accessibility

EXPERIENCE

Western Founder's Network **London, ON**

MapleHacks Organizer *Sep 2022 – Apr 2023*

MapleHacks was the first ever hackathon organized by Western Founder's Network and aimed to create solutions to the United Nations' Sustainable Development Goals (SDGs). The hackathon was held over two days on the Western University campus and saw 125 registered hackers with 13 projects submitted

- Spearheaded photography and videography during the event and distributed resulting media to sponsors
- Conducted sponsor outreach, contacting 100+ companies to organize funding and/or other forms of support
- Organized and oversaw food distribution and hacker entertainment during the hackathon
- Reviewed submitted projects and performed judging based on technical difficulty, creativity, and applicability to the SDGs

Kumon Waterloo — Laurelwood **Waterloo, ON**

Staff Tutor *Sep 2018 – Aug 2022*

Kumon is built on the philosophy of self-learning; the program reinforces literary and mathematical fundamentals, equips students with the habits and methods to self-study, and challenges them to learn new subjects independently.

- Acted as lead instructor for classes of up to 30+ students at a given time, attending both in-person and virtually
- Marked university-level mathematics and provided one-on-one guidance for students during class sessions
- Introduced 'early learner' students into the program over monthly cycles, guiding 70% of early learners to an honour roll placement within their first three months and supporting their advance to higher-level mathematics
- Performed inventory management and worksheet allocation for 250+ students

CERTIFICATES

France Éducation international **Issued June 2022**

Diplôme d'études en langue française (DELF) B1