

# Mohammad Labak

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[GitHub](#) | [My Website](#)

## SOFTWARE ENGINEERING CO-OP STUDENT

Focused on real-time systems, distributed coordination, low-latency networking, and safety-critical software, with experience designing operator-driven command-and-control platforms.

## PROJECTS

### Sentinel FieldView – Real-Time Command & Coordination Platform

C# · WinUI 3 · UDP Networking · Distributed Systems · Real-Time State Sync

[Sentinel Systems](#)

- Developed a **real-time guidance system** used to direct firefighters inside zero-visibility environments, enabling operator-driven navigation and coordination during active structure fires.
- Built a **WinUI 3 desktop operator console** for drawing paths, zones, and markers on floorplans and streaming updates in real time.
- Designed a **custom UDP-based protocol** with **binary message formats, sequence numbers, ACKs, deduplication**, and snapshot-based state recovery.
- Implemented an **authoritative relay architecture** for distributed state synchronization between operator and field clients.

### Manufacturing Operations & Ordering System - Allpac Container Ltd.

React · Node.js · MongoDB · Stripe

[View live site](#)

- Built a full-stack ordering and pricing system for a packaging manufacturer managing 12 production SKUs with **secure B2B payment processing**.
- System has processed \$80,000+ USD in production-linked orders with recurring monthly customers.

### Product Data Management Platform - LaPurity Water Tech

Next.js · Sanity CMS · Node.js

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- Built a structured product catalog system for industrial water treatment equipment using a headless CMS.
- Implemented automated data sync and optimized queries to achieve 95+ Lighthouse performance.

## SKILLS

**Languages:** C#, Python, C++, Java, JavaScript

**Frameworks:** WinUI 3, .NET, Flask, Node.js, React, Next.js

**Systems & Networking:** UDP Networking, Distributed Systems, Real-Time State Synchronization

**Databases:** MongoDB, MySQL

**Tools & Platforms:** Linux, Git, Docker

**Engineering & Design:** AutoCAD, Onshape, 3D CAD Modeling

## WORK EXPERIENCE

### Teaching Assistant

Sep 2024 - Present

University of Windsor, Windsor, Ontario

- Guided students through Python & C++ labs, debugged code live, and graded assignments with structured feedback.

### Design assistant (Co-op)

May 2022 - Aug 2022

MMA Architect, Windsor, Ontario

- Created **precision 3D technical drawings and layouts** in AutoCAD to support architectural design workflows.
- Developed strong spatial reasoning and engineering visualization skills.

## EDUCATION

### Bachelor of Computer Science (Honours, Co-op) - University of Windsor

2023 - Present

- Dean's List

Relevant Coursework: Software Development, Software Engineering, Databases