Yaman Albezreh

647-444-0781 yamanalbezrah@gmail.com LinkedIn Portfolio

Education

University of Waterloo **2029**

Bachelor of Applied Science in Systems Design Engineering *Waterloo, Ontario*

Technical Skills

Languages & Frameworks: Python, C++, React.js, Node.js, Flask, SQL, Java, Pandas, NumPy, Scikit-learn, TensorFlow, Matplotlib, MATLAB, R, AWS, **Other:** Power Bi, Excel, n8n, AutoCAD, SolidWorks, Falstad

Experience

Operations and Data Analyst **Jan 2025 – April 2025**

University of Waterloo - Grand River Hospital *Waterloo, Ontario*

- Designed and developed a suite of **Python-based software tools** to support real-time clinical decision-making and workflow optimization, built on insights from 100+ on-site observation shifts
- Built and deployed backend systems integrating **Machine Learning models** (regression, classification) and **optimization logic**, reducing forecast error by **16%** and enabling intelligent task scheduling for hospital staff.
- Developed data pipelines using **pandas** and **NumPy** for automated processing of 4+ years of patient records; built interactive visualization dashboards with **Matplotlib** and **ggplot2** to analyze trends in the dataset.
- Created interactive dashboards in **Power BI** and Excel, using **pivot tables** and DAX to visualize workforce metrics.
- Leveraged **Power Query** and SQL to clean, transform, and structure large datasets for analysis and reporting
- **Led agile-style sprint meetings** with clinical, IT, and research stakeholders to **define software requirements**, demo tools, and iterate solutions, ensuring technical solutions closely aligned with user needs.

Software Engineer **May 2025 – Present**

Waterloo Aerial Robotics Group (WARG) *Waterloo, Ontario*

- **Engineered** and **maintained** autonomous flight control software in **Python**, developing **modular components** for real-time decision-making, navigation logic, and dynamic obstacle avoidance using **LIDAR** and **MAVLink** protocols.
- **Designed** and integrated core interface components for WARG's cross-platform Ground Station **GUI** using **Flutter**, supporting telemetry visualization, operator command input, and system diagnostics in live testing environments.
- Migrated the landing pad detection system to **YOLOv8** using the **Ultralytics** framework, improving inference performance and **enabling accurate landing** pad localization during simulated autonomous flight missions.

Projects

FrameDetect | *Python, OpenCV, NumPy, scikit-learn* **January 2025 – March 2025**

- Engineered a drone video processing pipeline that performs **automated frame extraction** and **image stitching** to generate high-resolution panoramic images of crop fields.
- **Optimized spatial frame selection** using **OpenCV** and **NumPy**, reducing redundancy by **45%** and improving stitching speed by **35%** on standard drone footage.
- Designed an intuitive interface for seamless video upload, stitched output preview, and export of ML-ready field imagery for actionable insights in precision agriculture.
- Designed a **retraining loop** to continuously **improve crop issue detection** models using newly labeled image data.

Weather Data System | *React, Next.js, FastAPI, Pydantic* **April 2024**

- Developed a **full-stack** weather data system using FastAPI and Next.js to process and retrieve real-time weather information via WeatherStack API.
- Implemented a **POST endpoint** in FastAPI to accept inputs, fetch data, and store results in-memory with unique IDs.
- Built a dynamic front-end interface with **form validation**, **ID-based lookup**, and **responsive Tailwind CSS UI**
- Used **Pydantic** for request/response validation and ensured RESTful communication between frontend and backend.

Click2booknow | *React, Flask, REST API, SQLite* **May 2025 – Present**

- Built a full-stack appointment scheduling platform using **React** and **Flask**, allowing users to book appointments and receive email confirmations.
- Developed **RESTful API** endpoints to handle appointment creation, retrieval, and admin-side management—including a **dashboard** for viewing and deleting bookings.
- Integrated **automated email** confirmations using Gmail SMTP to notify users upon successful submission.

Relevant Coursework

Software: OOP, DSA, Algorithm Analysis, Software Debugging, Systems Programming, Software Design & Architecture, Version Control. **Other:** CAD, Mechanical Design, Digital Logic, Sequential Circuits, Circuit Design