

# Ishaan Mittal

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## EDUCATION

### University of Waterloo

Candidate for Bachelor of Applied Science - BAsC, Computer Engineering

Waterloo, ON

Sept. 2025 – Present

## EXPERIENCE

### Autonomy Software Developer

Waterloo Aerial Robotics Group

Sept. 2025 – Present

Waterloo, ON

- Engineered a **Python-based ground station** using **MAVLink**, **multi-process (KPN) architecture**, and **computer vision** to ensure reliable drone communication and precise orientation.
- Collaborated with teams to integrate **communication** and **control modules** to improve **path accuracy**.
- Debugged** and **logged** code using **pytest** and **pylint** to achieve **100%** test coverage and maintainable code.

### CyberSecurity Intern

NetraScale

Jul. 2025 – Sept. 2025

Toronto, ON

- Boosted **UI/UX** interactivity by **25%** by adding dashboards and visuals in **React** using **prompt engineering**.
- Optimized analytics workflows with **FastAPI** and **Chart.js**, developing **LLM-based** data visuals that improved team understanding of relationships between activity, traffic, and threats, reducing analysis time by **30%**.
- Simplified **20+ cybersecurity** policies into visual summaries, improving client clarity and compliance by **40%**.

### First Robotics Programming Lead

Bishop Reding Secondary School

Sept. 2024 – April 2025

Milton, ON

- Led robot programming in **Java** and **WPILib** to enhance movement precision and system reliability.
- Built real-time vision pipelines with **PhotonVision** and **OpenCV** for **AprilTag** tracking and auto-alignment, improving navigation accuracy by **60%** during competitions.
- Integrated **encoders**, **LaserCAN**, and **Limelight** to enhance trajectory and boost scoring efficiency by **25%**.

### Professional Development Staff Cadet

Government of Canada

Jul. 2024 – Aug. 2024

Vernon, BC

- Initiated **daily team reflections** to provide feedback and strengthen **mentor-mentee** relationships.
- Mentored **50+** peers through sessions and evaluations to improve **knowledge transfer** and **leadership**.
- Instructed **100+** individuals on standards through guides and videos to ensure **safety** and **compliance** to rules.

## PROJECTS

### Greenify 🌱 | Python, JavaScript, OpenCV, Figma, ML

Oct. 2024 – Oct. 2024

- Developed a **Python ML** application to detect food waste, promoting **environmental sustainability**.
- Processed **900+** images with **YOLO** and **OpenCV** to build **ML** datasets that improved model accuracy.
- Designed **UI** in **Figma** and added interactivity with **CSS** and **JavaScript** to improve user experience.

### SmartVault 🔒 | Java, OpenCV, JavaSwing, Alpha Vantage, Git

May 2024 – Jun. 2024

- Programmed a **Java-based** banking simulator with FaceID authentication, fund transfers, and stock tracking.
- Embedded **facial recognition** through **OpenCV** to enable secure, multi-factor user verification.
- Refined transfer/cashout systems and integrated **AlphaVantage API** for **10+** stocks to boost user engagement.

## SKILLS

**Languages:** Java, Python, C#, C++, JavaScript, HTML/CSS

**Frameworks:** React, Node.js, Express.js, FastAPI

**Developer Tools:** Git, VS Code, Visual Studio, IntelliJ, NetBeans, Figma, Replit

**Libraries:** WPILib, OpenCV, JavaSwing, WindowsForm, PhotonVision, JQuery

**Hardware:** Arduino, XRP, SparkMax, Limelight, LaserCan

**Soft Skills:** Leadership, Analytical Thinking, Problem Solving, Organization, Communication

## CERTIFICATIONS & AWARDS

**Certifications:** Introduction to MERN Stack, Introduction to Cloud Computing, Data Structures (Python)

**Awards:** Chief Warrant Officer Badge, Royal Canadian Legion Medal of Excellence, Hack 49 Hackathon 3rd Place, CROC Mission to Mars Hackathon 1st Place, Former Top 2 Canada Brawl Stars