Ishaan Mittal

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EDUCATION

University of Waterloo — Waterloo, ON
Candidate for Bachelor of Applied Science - BASc, Computer Engineering — *Sept. 2025 – Present*

EXPERIENCE

Autonomy Software Developer — Sept. 2025 – Present
Waterloo Aerial Robotics Group — *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 — Jul. 2025 – Sept. 2025
NetraScale — *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 — Sept. 2024 – April 2025
Bishop Reding Secondary School — *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 — Jul. 2024 – Aug. 2024
Government of Canada — *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, Jupyter Notebook
Developer Tools: Git, VS Code, IntelliJ, NetBeans, Figma, Replit, Docker, MongoDB
Libraries: WPILib, OpenCV, JavaSwing, WindowsForm, PhotonVision, JQuery
Hardware: Arduino, XRP, SparkMax, Limelight, LaserCan, ESP32, Oscilloscope
Soft Skills: Leadership, Analytical Thinking, Problem Solving, Organization, Communication

CERTIFICATIONS & AWARDS

Certifications: Introduction to MERN Stack, Microsoft Security Essentials, Introduction to Cloud Computing, Microsoft Azure AI Essentials, Introduction to Generative AI, The Cybersecurity Threat Landscape
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