Ben Potter

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PERSONAL SUMMARY

Ben Potter is a Master's student in Computer Engineering at Queen's University researching bio-inspired polarization compass systems. His work on insect-inspired navigation has led to multiple publications, including a journal paper in IEEE Access. Ben combines expertise in computer vision, embedded systems, and hardware development to advance autonomous navigation technologies. He previously completed his undergraduate degree as a Dean's Scholar and served as Chair of the IEEE Kingston Section Student Branch.

TECHNICAL SKILLS

Programming Languages: Rust, Python, Java, JavaScript, C/C++, MATLAB, LaTeX
Hardware & Embedded: Raspberry Pi, Arduino, Industrial Cameras, Linux
Software Engineering: Git, Jira, Agile Methodologies, Software Architecture, OpenCV, Robot Operating System (ROS)
Research Tools: Technical Writing, Data Analysis, Academic Publishing, Literature Review

EDUCATION

Queen's University, Kingston, Canada May 2025 — Present
Master of Applied Science in Computer Engineering
Supervisor: Dr. Muhammad Alam
Supervisor: Dr. Yahia Antar
Interests: Polarization-based Navigation; Fused-sensor Systems; Safety-critical Software

Queen's University, Kingston, Canada Sep. 2021 — Apr. 2025
Bachelor of Applied Science in Computer Engineering Dean's Scholar, Average: A-

PUBLICATIONS

[1] D. Agarwal, B. Potter, J. Y. Siddiqui, Y. Antar, and M. Z. Alam. Bio-inspired polarization compass for solar azimuth prediction. In *2024 Photonics North (PN)*, pages 1–2, 2024.

[2] D. Agarwal, B. Potter, J. Yaseen Siddiqui, Y. M. M. Antar, and M. Z. Alam. Bio-inspired polarization compass for solar azimuth prediction under clear and cloudy sky conditions. *IEEE Access*, 13:3242–3250, 2025.

[3] B. Potter, D. Agarwal, Y. Antar, and M. Z. Alam. Evolution of hough transform for solar azimuth prediction. In *2024 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*, pages 186–187, 2024.

[4] B. Potter, D. Agarwal, J. Y. Siddiqui, Y. Antar, and M. Z. Alam. Bio-inspired polarization compass. In *2025 Inquiry at Queen's*, 2025.

ACADEMIC EXPERIENCE

Automated Planning for Air Traffic Control
Master's Coursework Sep. 2025 — Dec. 2025
Instructor: Dr. Jon Gammell

- Identified the systematic manpower shortage in current air traffic control infrastructure.
- Implemented and extended novel research on automated air traffic control planning systems.
- Developed an academic report that outlined my findings.

Radiation-Induced Anomaly Detection in System Call Logs
Bachelor's Thesis Sep. 2024 — Dec. 2025
Supervisor: Dr. Sean Kauffman

- Analysed over 10 billion system call logs generated by embedded devices under radiation beam.
- Discovered an anomaly that occurred before complete system failure.
- Developed an academic report that discussed our findings.

Bio-Inspired Polarization Compass
Junior Research Assistant, Royal Military College of Canada Sep. 2023 — Apr. 2025

- Developed camera-based hardware for capturing skylight polarization images.

- Implemented novel solar azimuth parsing algorithms.
- Three publications including one journal paper.
- Presented work in multiple academic venues.

WORK EXPERIENCE

QA Consultants
Associate Intern Mar. 2022 — Sep. 2022

- Worked in an agile team of five focused on R&D for automated software testing.
- Delivered brand new model-based testing software to a large client with close to 4,000 employees.
- Retrofitted existing testing architecture that drastically improved maintainability and reduced total line count by 50%.
- Worked with Java, Python, Selenium, Git, Jira.

Hatch Coding
Teacher Sep. 2019 — Sep. 2021

- *Course delivery:* Taught Javascript and Python to students 10-15 years old.
- *Couse development:* Developed course material for intermediate and advanced programming classes.

VOLUNTEER EXPERIENCE

Institute of Electrical and Electronics Engineering
Chair, Kingston Section Student Branch Jan. 2024 — Dec. 2026

- Tripled the number of active members during my two year tenure.
- Organized three student competitions with cumulative prize pools of $1,500.
- Organized technical lectures from distinguished speakers at Google, NASA, and Queen's.

Queen's University
SGPS Representative, Graduate ECE Council May 2025 — Apr. 2026

AWARDS

- Vice-Principal Undergraduate Research Award, $1000 CAD
- NSERC Undergraduate Student Research Award, $7000 CAD