MARGO **BAIN** B.Sc.(Eng)

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TECHNICAL SKILLS

Matlab, Microsoft Office, C, Assembly Language, VHDL, LaTeX, Public Speaking, JavaScript, Python, Project Management, Octave.

EDUCATION AND COURSEWORK

April 2018 — **B.Sc.(Eng.): Mathematics and Engineering, Systems and Robotics**
Queen's University - Kingston, ON

- The Mathematics and Engineering program combines the sophistication and rigor of a mathematics degree with the practical applications of electrical and mechanical engineering.
- Course Highlights: *Modern Control Theory; Information Theory; Stochastic Controls; Microprocessor Interfacing & Embedded Systems, Lagrangian Mechanics, Dynamics, & Control; Mining Systems, Automation, & Robotics; Machine Learning (Stanford University).*

Spring 2016 — **Global Project Management**
Bader International Study Centre - Hailsham, UK.

- 6-week program which satisfies educational requirements for PMP Certification.
- Experiential Learning Opportunities with executives at Lloyd's of London, Hatch Ltd., and Foster and Partners.

PROJECT HIGHLIGHTS

April 2018 — **Stabilization of UAVs for Wildfire Tracking**
Queen's University - Kingston, ON

- Applied mathematical methods and computational fluid dynamics to model the motion of a UAV through turbulent flow generated by wildfires.
- Developed a controller to stabilize a UAV in turbulent smoke for effective tracking of wildfire spread.

April 2017 — **Maintaining a Thriving Ocean Ecosystem: Applications of Controller Design**
Queen's University - Kingston, ON

- Applied control theory and system analysis to develop stabilization techniques for aquatic ecosystems.
- Analyzed the effects of the developed PID controller on economic and environmental stability of a region.

December 2015 — **Alpine Cell Coverage: An Application of Multi-Agent Systems**
Queen's University - Kingston, ON

- Applied a discretized version of Lloyd's Algorithm to model the application of drones, retrofitted with cell signal repeaters, to a ski hill with dynamic skier movement and distribution.
- Developed a GUI simulating the system over time coupled with an analysis of service coverage.

March 2015 — **Mining Equipment Fit Algorithm**
Queen's University - Kingston, ON

- Collaborated with a Toronto-based consulting company to develop a C algorithm which utilizes 3D point cloud data and equipment dimensions to determine if a piece of mining equipment would fit through a drift.

EXPERIENCE

May 2017 – August 2017 — **Colliers Project Leaders** - Mississauga, ON
Project Management Intern

- Worked on projects located in high-security facilities including detention centres and courthouses.
- Conducted on-site organization of contractors and consultants.
- Provided support to Project Managers including schedule updates, progress reports, and preparation of tender and contract documents.

2015 - 2018 — **Engineers Without Borders (Queen's Chapter)** - Kingston, ON
President (February 2017 – May 2018)

- Oversaw chapter operations and acted as an advisor for a 13 portfolio, 60-person executive team.
- Acted as liaison between the National Organization of Engineers Without Borders and the Queen's Chapter.
- Developed strategic plans for finances, operations, and long-term trajectory of the Queen's Chapter.
- Manager of National Engineering Month (May 2016 – April 2017)
- Director of Youth Engagement (September 2015 – May 2016).

AWARDS

Duke of Edinburgh Award (Gold Level), Queen's Excellence Scholarship, AP Scholar with Honours

INTERESTS & ACTIVITIES

Sustainable Development, Rowing, Art, Volleyball, Swimming, Water Polo