

BENJAMIN COX

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AVAILABLE FALL 2026 FOR UP TO 12 MONTHS

Education

Queen's University

B.A.S.c Mechatronics and Robotics Engineering – 3.28 GPA – Dean's Distinction (2024-25)

Kingston, ON

Expected: May 2028

Highlights

- **1st Place:** Queen's Engineering Competition Senior Design, Hult Prize Qualifiers. **2nd Place:** Queens Engineering Sustainable Solutions and Technologies Competition
- Collaborated with Queen's faculty and leading a multidisciplinary R&D team of 30+ members to produce international research papers. As while as mentoring sailing instructors and launching new programs that increased enrollment by 65%.
- Engineered a functional 20:1 helical gearbox prototype using Onshape, DFM, and GD&T to achieve high-precision engineered mechanisms and high-torque output.

Extracurricular Experience

Queen's Aerospace Design Team

Kingston, ON

Director of Research & Development

May 2025 – May 2026

- Directing R&D operations for 3 managers using a phase-gate management frameworks ensuring on-time completion for 3 international research paper submissions.
- Co-authored a funding paper resulting \$26.5K in donations from Smith Engineering, creating opportunities for more aerospace projects.
- Expanded research teams from 20 members to 30+ members through selective recruitment.
- Consulted with 4 faculty members to help formulate research and conduct experiments.

Queen's Hyperloop Design Team

Kingston, ON

Director of Levitation Research & Professional Development

Jun 2025 – May 2026

- Creating a small-scale levitation module, simulated in Ansys Maxwell and currently constructing to take to European Hyperloop Week 2026.
- Created professional development opportunities for the overall team through workshops and mentoring sessions.
- Working to create a small-scaled modular hyperloop levitation system as part of research initiatives.
- Managed a team of 4 in researching a emergency landing wheel for MagLev vehicles, presented findings and won 1st place at Hyperloop Global 2025.

Engineering Society of Queen's University

Kingston, ON

Orientation Leader (FREC)

Aug 2024 – Sep 2024

Technical Project

High-Torque Helical Gearbox

- Designed a 20:1 reduction helical gearbox in **Onshape**, building a custom parametric enclosure around a specialized gear train to convert 10,000+ RPM input to high-torque output.
- Optimized 3D-printed housing with 5mm base plates and reinforced bosses to neutralize the axial forces and vibration inherent to helical gear engagement.
- Applied tolerance offsets across all bores and mounts to account for 3D printer path overflow, achieving friction fits while integrating brass heat-set inserts and fasteners for high clamp loads and repeatable, wear-free maintenance cycles.

Professional Experience

Dalhousie Yacht Club

St. Catharines, ON

Head Instructor

Feb 2025 – Aug 2025

- Transformed training programs: increased enrollment by **65%**, raised pass rates to **80%** by building structured curricula and mentoring instructors.
- Launched new Adult Sailing and Instructor-in-Training programs.
- Secured **\$22.5K in sponsorships** and awarded Certificate of Appreciation from The Navy League of Canada.

Barrie Yacht Club

Barrie, ON

Development Coach & Advanced Sailing Instructor

May 2023 – Aug 2024

Technical Skills

Hardware: Soldering, Circuit Analysis, FDM Additive Manufacturing

Design: SolidWorks, Onshape, SimScale, LTSpice, GD&T, DFM/DFA

Programming: Python, C, C++, HTML, MATLAB, Git, Docker, VHDL, Assembly

Productivity: Word, PowerPoint, Excel, Figma

Languages: French (Fluent), English (Fluent)