NOREEN ABDELWAHAB MSc EIT

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EDUCATION

Doctor of Philosophy (PhD) in Mechanical Engineering September 2025 – Present
Algorithms, Optimization and Control Lab, University of British Columbia
Research focus: Data-driven control for multi-agent energy systems

Master of Science (MSc) in Mechanical Engineering December 2024
Aerospace and Compressible Flow Research (AERO-CORE) Group, University of Calgary
Thesis: *Mass- and momentum-conserved secondary injection model (MMC-SIM) for thrust vector control analysis*

Bachelor of Science (BSc) in Mechanical Engineering April 2022
Schulich School of Engineering, University of Calgary
Minor in Mechatronics (with Internship) | Cumulative GPA: 4.00 | Dean's List (2017-2022)

HONORS & AWARDS

Received over **20 honors and awards** totaling **$100,000+**. Key awards include:
Graduate Awards

- Four-Year Doctoral Fellowship (2025-2029) – $18,200 + tuition x4
- John D. Petrie QC Memorial Graduate Scholarship (2023-2025) – $15,000 x2
- NSERC Canada Graduate Scholarships – Master's (2022-2023) – $17,500

Undergraduate Awards

- Governor General's Silver Medal (2022) – most prestigious academic awards in Canada
- Seymour Schulich Academic Excellence Scholarship (2017-2021) – $37,200, awarded for academic merit and community engagement
- Schneider Electric Canada Inc. Scholarship – $12,000

PUBLICATIONS

Abdelwahab, N. (2024). Mass- and momentum-conserved secondary injection model (MMC-SIM) for thrust vector control analysis (Master's thesis, University of Calgary, Calgary, Canada).

In progress: Abdelwahab, N., Johansen, C. "Mass- and momentum-conserved secondary injection model (MMC-SIM) for thrust vector control analysis," *The Aeronautical Journal.*

SKILLS

Engineering Software: SolidWorks, Creo Parametric, OpenFOAM

Programming: MATLAB, Python, Arduino, Processing (Java-based)
Other Tools: Adobe Illustrator, CorelDRAW, LateX
Languages: English (fluent), Arabic (fluent)

WORK EXPERIENCE

Mechanical Engineering Design Intern May 2020 – August 2021
SKF Magnetic Bearings, Calgary

- Designed and manufactured magnetic levitation bearings, applying principles of high-speed digital **control systems**, and electromagnetism.
- Conducted validation testing and prototype assembly of mechatronics systems across full design-build-test cycles.
- Developed mechanical parts, assemblies and drawings using Creo Parametric software with a focus on manufacturability.
- Performed structural and performance analysis using mechanical and magnetic Finite Element Analysis (FEA).

Research Assistant July 2019 – September 2019
Department of Mechanical and Manufacturing Engineering, University of Calgary

- Developed a MATLAB video processing algorithm for **vibration analysis** of oscillating beams.
- Contributed to an **$8 million Innovation Fund proposal** for the Canada Foundation for Innovation, which required technical writing, preparing figures, and developing a budget.

Engineering Summer Student May 2018 – August 2018
Cochrane Extraction Plant, Inter Pipeline Ltd.

- Developed a monitoring program using Excel demonstrating the effectiveness of **Advanced Process Control** (APC) and reported the benefits of expanding APC.
- Collaborated with engineers, contractors and vendors to set up a traffic survey ensuring regulatory compliance for noise levels.
- Established an ultrasonic greasing program enabling mechanics and engineers to monitor rotating equipment, providing the ability to forecast emergency shutdowns.

EXTRACURRICULARS

VP of Mechanical Engineering / Propulsion Team Member September 2018 – June 2022
Student Organization for Aerospace Research (SOAR), University of Calgary

- Led the successful **launch of three** student-designed and manufactured rockets.
- Designed and manufactured major rocket components including bulkheads, fuel regression matrices and electronics mounting using SolidWorks.
- Managed integration of mechanical, electrical, and software systems across 5 sub-teams.

- Directed design reviews for members and sub-team leads, and providing feedback on designing for assembly, manufacturability, and integration.
- Introduced high-powered rocketry to the community through outreach workshops and training of new SOAR members.

Resource Coordinator and Mentor (Volunteer Position) February 2018 – September 2019
Executive Committee, University of Calgary Robotics Association (UCRA)

- Mentored elementary and middle school students in robotics, technology and coding using Arduino microcontrollers and Lego NXT kits.
- Coordinated resources and volunteers for outreach programs.

MEMBERSHIPS

- Engineer-In-Training, Association of Professional Engineers and Geoscientists of Alberta (APEGA)
- Student Member, Tripoli Rocketry Association (2022)

INTERESTS & ACTIVITIES

Sports: Basketball, rugby, hiking, cycling, yoga
Art: Graphic design**,** cake decorating, painting