

Hamza Dugmag *Electrical and Computer Engineering Student*

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SKILLS

Programming

MATLAB, Python (NumPy, Pandas, SciPy, PyTorch), C/C++, Verilog, Assembly, Git, Docker, ROS, DHTML

Electrical

Raspberry Pi, Arduino, Quartus Prime, LTspice, Altium Designer, Soldering

Mechanical

SolidWorks, Fusion 360, Woodworking, 3D Printing, Laser Cutting

Other

LaTeX, Unreal Engine, Photography, Adobe Illustrator, MS Excel

PROFESSIONAL EXPERIENCE

Robot Navigation Research Intern, U of T Autonomous Space Robotics Lab

- Developed a real-time GUI using ROS and ReactJS to visualize the navigation policy of a Clearpath Heron unmanned surface vehicle (USV).
- Conducted field trials in lakes to test USV mapping, localization, and navigation.
- Co-supervised by Prof. Tim Barfoot (UTIAS) and Prof. Florian Shkurti (CS).

May 2022 – present
Mississauga, ON, Canada

Engineering Academic Review Mentor,

U of T Faculty of Applied Science and Engineering

- Hosted guided engineering academic review sessions (GEARS) every week aimed at supporting first-year Engineering Science students with their academic, professional, and personal goals.

Aug 2021 – May 2022
Toronto, ON, Canada

Machine Learning Research Intern, U of T Forcolab Group

- Replicated BERT models for detecting type-III code clones using PyTorch.
- Optimized parameters for hierarchical density-based clustering of Stack Overflow posts using Pandas and Docker, increasing precision by 11.1%.
- Presented "Analyzing Stack Overflow Community Posts to Automate Knowledge" at the 2021 UnERD Conference.
- Co-supervised by Prof. Shurui Zhou (ECE) and Prof. Iftekhar Ahmed (UCI).

May 2021 – Sep 2021
Toronto, ON, Canada

EDUCATION

BASc in Engineering Science (Major in Electrical and Computer Engineering),

University of Toronto (St. George)

- cGPA: 3.93/4.00 (90%), Dean's Honours List in all semesters.
- Minor in Robotics and Mechatronics and Certificate in Engineering Business.
- Relevant courses: Electric Circuits, Digital and Computer Systems, Electromagnetism, Data Structures and Algorithms, Engineering Design I/II/III, Engineering Ethics.

Sep 2020 – Apr 2025
Toronto, ON, Canada

EXTRACURRICULARS

University of Toronto Aerospace Team — Rocketry Division

Liquid Rocket Chief Engineer

- Leading the design, analysis, fabrication, and testing of a liquid bipropellant rocket set to break the Canadian Amateur Rocketry Altitude Record.

Jun 2022 – present
Toronto, ON, Canada

Avionics Co-Lead and Member

- Developed data acquisition methods to calibrate load cells and pressure transducers with 95% accuracy.
- Designed surge-protected relay circuits for DC motors controlled by a *Raspberry Pi*, increasing power rating by 54%.
- Represented the Rocketry team in an interview for *UTAT*'s recruitment and sponsorships video. ☑

Jan 2021 – Jun 2022
Toronto, ON, Canada

PROJECTS

Maintaining Vaccine Temperatures, *Engineering Science — Praxis III*

Jan 2022 – present

- Co-authored a design proposal, project management plan, and financial budget.
- Prototyped a thermochemical cooling box using *Fusion 360* and 3D printing.
- Programmed a temperature controller with a *Raspberry Pi* using *Python*.

Modelling a Vibrating Building, *MathWorks MATLAB Summer Hackathon*

Jul 2021 – Jul 2021

- Implemented systems of differential equations in *Simulink* to simulate free vibrations.
- Calculated resonant frequencies in *Microsoft Excel*.
- Received the "Best Use of *Simulink*" award.

AWARDS

(C\$9000) NSERC Undergraduate Student Research Award,

Mar 2022

Natural Sciences and Engineering Research Council

(C\$9000) Fessenden-Trott Scholarship Winner, *Universities Canada*

Sep 2021

Selected among nominees from every Ontario university on the basis of academic merit and extracurricular involvement.

(C\$5000) Dean's Summer Undergraduate Research Pivot Award,

Sep 2021

U of T Faculty of Applied Science and Engineering

Participated in the *Undergraduate Summer Research Program*.

Second Degree Black Belt, *World Taekwondo — Kukkiwon*

Aug 2021

International athlete and coach with 7 years of experience.

Amateur Radio Operator Certificate (Basic with Honours),

Jul 2021

Innovation, Science, and Economic Development Canada

VA3UFT call sign, 100% exam score.

(C\$7000) Dean's Merit Awards, *U of T Faculty of Applied Science and Engineering*

Sep 2020

(C\$2000) Rotary Education Award, *Rotary Club of Oakville*

Jun 2020

(C\$2000) May Court Education Award, *May Court Club of Oakville*

Jun 2020

Humanitarian Service Project Silver Medal, *Muslim Interscholastic Tournament*

Mar 2019

Executed a fundraiser campaign with *Islamic Relief USA* for East Africa's water and sanitation crisis.