Hamza Dugmag *U of T Engineering Science — Year 2 + PEY Co-op*

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Professional Experience

Student Leader — Academic Review Mentor,
U of T Faculty of Applied Science and Engineering
Aug 2021 – present | Toronto, ON

- Led weekly sessions for Year 1 Engineering Science students.

Rocketry Avionics Lead, *University of Toronto Aerospace Team*
Jan 2021 – present | Toronto, ON

- Led a team of 11 students to deploy ground and flight systems for *UTAT*'s high-altitude rockets.
- Developed data acquisition methods to calibrate load cells and pressure transducers with 95% accuracy.
- Designed surge-protected relay circuits for DC motors using C++ and a Raspberry Pi, increasing power rating by 54%.
- Represented the team in *UTAT*'s recruitment video.

Natural Language Processing Research Intern,
University of Toronto — Forcolab Group
May 2021 – Sep 2021 | Toronto, ON

- Replicated BERT models for detecting type-III code clones using Python and PyTorch.
- Optimized parameters for hierarchical density-based clustering of *Stack Overflow* posts on a remote server using Docker, increasing precision by 11.1%.
- Presented *"Analyzing Stack Overflow Community Posts to Automate Structured Posts"* at *U of T UnERD* 2021 (87% score).

Awards

Dan II Black Belt, *World Taekwondo Kukkiwon*
Dec 2021
International athlete and coach with 7 years of experience.

Fessenden-Trott Scholarship Winner (C$9000),
Universities Canada
Sep 2021
Selected among nominees from every Ontario university on the basis of academic merit and extracurricular involvement.

Dean's Summer Undergraduate Research Pivot Award (C$5000), *U of T Faculty of Applied Science and Engineering*
Sep 2021
Attained Co-Curricular Record for participating in the *Undergraduate Summer Research Program*.

Amateur Radio Operator Certificate, *ISED Canada*
Jul 2021
VA3UFT call sign, Basic with Honours (100% exam score).

Skills

Programming *(MATLAB, Python (tf, sklearn, pd, np, plt), C/C++, Verilog, Assembly, LaTeX, Git, Docker)*

Circuits, CAD *(Arduino, SolidWorks, Raspberry Pi, FPGAs, LTspice, AutoCAD, Soldering, 3D Printing)*

Education

BASc in Engineering Science + PEY Co-op,
University of Toronto (St. George)
Sep 2020 – Apr 2025 | Toronto, ON

- Intended Major in Electrical and Computer Engineering + Robotics, Energy, and Artificial Intelligence Minors + Business Certificate.
- 3.93 cGPA, 90% average, Dean's List.
- Courses: Algorithms and Data Structures, Digital and Computer Systems (Verilog and Assembly), Electric Circuits, Engineering Design I/II/III.

Projects

Automating Water Quality Testing
Sep 2021 – present

- Designed a radio and GPS circuit for remote control and tracking of the marine robot.
- Researching autopilot methods with sensors.

Modelling a Vibrating Building,
MathWorks MATLAB Summer Hackathon
Jul 2021

- Implemented systems of differential equations to simulate free, forced, and damped vibrations while estimating resonant frequencies in Excel.
- Received the *"Best Use of Simulink"* award.

Improving Ski Airbag Trigger Systems, *Praxis II*
Feb 2021 – Apr 2021

- Prototyped avalanche detection and Bowden cable pulling mechanisms with an Arduino.
- Created testing protocols for design verification.

Analyzing and Processing Images
Mar 2021

- Implemented a dual-gradient energy function for content-aware image resizing in C.
- Designed a Python GUI to detect blurry images in a specified directory using Laplacian filters.