

DAVID HARDY

Electrical Engineer | 4th Year Undergraduate Student

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SUMMARY

- Experienced with **Ansys HFSS** and **ADS** demonstrated by designing microwave circuits and antennas in coursework
- Good understanding of **RF** and **EM theory** learned through coursework
- Proficient with circuit design software such as **Cadence** and **LTspice**
- Familiar with **RF PCB design**, demonstrated in RF power detector project
- Experienced with lab equipment such as **spectrum analyzers**, **oscilloscopes**, **VNAs**, and **signal generators** from coursework and projects
- Proficient with **MATLAB**, **Python**, and **C/C++**

EXPERIENCE

Undergraduate Research Assistant

University of Waterloo

Jan 2023 – Present

Waterloo, Ontario

- ACR Laboratory, supervised by Dr. Omar Ramahi
- Worked with a PhD student to fabricate antennas with a 3D printer
- Working with a PhD student to design an experiment to measure and characterize antenna designs

Circuit Design Hardware Engineer

Untether AI

Sep 2022 – Dec 2022

Toronto, Ontario

- Used Cadence to perform simulations and timing analysis of wordline (WL) signals in the Computational RAM (CRAM) blocks
- Created power tests in Python to measure power consumption across the Network-on-Chip (NOC)
- Created a Bash script to merge static timing libraries (.lib files) in SPICE

Math Tutor

Humber College

Jan 2022 – Apr 2022

Toronto, Ontario

- Tutored students in electronic circuits, electromagnetics, control systems, calculus, statistics, and business math courses
- Tutorial TA for statistics (STAT5002) and technical math (TMTH104) courses
- Used LaTeX to create study resources for students, such as review sheets

Communications Team Member

uWaterloo Orbital (Design Team)

Jan 2022 – May 2022

Waterloo, Ontario

- Worked on the development of an app that serves as an interface to send and receive commands from a **CubeSat**
- Implemented a backend **Flask** server to retrieve data from databases for the frontend with HTTP requests
- Created documentation on **analog/digital modulation techniques** for other team members to learn concepts and implement them into their design

EDUCATION

BASc in Electrical Engineering

University of Waterloo

Sep 2018 – Apr 2023 (Expected)

- GPA: 3.7/4.0 (80%)

SKILLS

Electrical

- Keysight ADS
- Ansys HFSS
- Cadence
- Keysight SystemVue
- Altium
- LTspice
- PSIM
- STM32 & Arduino
- AutoCAD & Revit
- Soldering & Wiring

Programming

- MATLAB
- Python
- NumPy & Matplotlib
- C/C++

Lab Equipment

- Spectrum analyzer
- Oscilloscope
- VNA
- Signal generator

PROJECTS

RF Power Detector

May 2022 – Present

- Designed a power detector circuit to measure incident power at 300 MHz
- Used Altium for PCB fabrication
- Measured output of the chip is accurate and has a maximum of 4% error compared to theoretical calculations

Patch Antenna

Aug 2022

- Designed using theoretical equations learned in coursework (ECE475)
- Used HFSS to simulate and tune antenna

Image Noise Filter

Dec 2021

- Created a switching bilateral filter (SBF) for noise detection and noise removal with MATLAB
- Used techniques discussed in research papers of SBFs such as noise and edge detection
- Filter performance is comparable to MATLAB's built-in median filter