TOREN DOFHER tdofher@gmail.com

BASc. Engineering Physics, Minor in Honours Mathematics

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WORK EXPERIENCE

TEACHING ASSISTANT, UBC, VANCOUVER
SEPTEMBER 2019 – MAY 2020

- Undergraduate TA for PHYS 157, an intensive introductory physics course taken by all engineering students
- Worked directly with students in tutorial sections, providing both 1-on-1 help and classroom lectures

RADIO-FREQUENCY ENGINEER CO-OP, GOVERNMENT OF CANADA, OTTAWA
MAY 2019 - AUGUST 2019

- Researched, designed, and tested an experimental PCB for Radio-Frequency applications. The project was largely self-guided and required quick learning of the underlying physics, design and simulation software and the state-of-the-art testing equipment
- Completed an internal technical report outlining findings and avenues of future research in addition to leaving detailed documentation throughout every stage of the project

MATHEMATICIAN & DATA SCIENTIST, GOVERNMENT OF CANADA, OTTAWA
SEPTEMBER 2018 - DECEMBER 2018

- Applied analytic and problem-solving skills to challenges in communication systems, information processing and security systems
- Analyzed a dataset, modeled it, and devised strategies to take advantage of any discovered structure or properties
- Operated with a high degree of accountability and integrity in an environment with sensitive information and real-world impact
- Presented findings to a formal internal panel and to international collaborators

QUALITY ASSURANCE CO-OP, TRULIOO, VANCOUVER
MAY 2018 - AUGUST 2018

- Automated complicated QA processes to test the company's web application
- Worked with a large team of developers, product designers and dev-ops in an Agile environment. Became familiar with best practices and workflow of a software company

RESEARCH ASSISSTANT, BIOMEMS LAB, VANCOUVER
JANUARY 2017 - APRIL 2017

- Conducted studies in microfluidics for the purposes of single cell printing
- Automated many of the processes within the role including scripts to do image processing work and operating the motorized microscope, resulting in tenfold productivity increase
- Created a photographing system that could capture individual droplets with microsecond precision and a circuit for modifying waveforms controlling the laboratory drop printer

EDUCATION

UBC, VANCOUVER, BASc. ENGINEERING PHYSICS, MINOR IN HONOURS MATHEMATICS, GRADUATED MAY 2020

- 86% Average, Dean's Honor List, Full Co-op designation
- APEGBC Entrance Scholarship, Loran Scholarship, Thomas Beeching Scholarship, Trek Excellence Scholarship, Canadian Merit Scholarship, Special University Entrance Award

Skills

Math:
- ODEs/PDEs
- Complex Analysis
- Real Analysis
- Group Theory
- Number Theory
- Calculus of Variations
- Green's Functions
- Applied Linear Algebra
- Probability
- Cryptography

Physics:
- Nuclear Physics
- Advanced E&M
- Quantum Physics
- Special Relativity
- Optics
- Statistical Mechanics
- Classical Mechanics

Computer:
- C, C++, C#, Arduino
- Python
- Java
- MATLAB
- HTML, CSS
- Javascript
- Microsoft Excel, etc.
- Git, Bitbucket
- Unity, Unreal

Electrical:
- ANSYS HFSS Simulation Software
- KiCAD PCB Design Software
- LTSpice, CircuitMaker
- Digital Logic
- Circuit Analysis
- VHDL
- Control Systems
- Radio-Frequency

Mechanical & Prototyping:
- SolidWorks/OnShape
- Waterjet Cutter
- Laser Cutter
- 3D Printer
- Machine Shop: lathe, milling machine etc.

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RESEARCH AND TECHNICAL PROJECTS

CELES-TIAL-SKETCH, CITRUS HACKS 2020
APRIL 2020

- Won Best Space Hack and Most Creative Hack for Celes-Tial-Sketch; an easy to use program that takes user sketches and optimally maps them onto the night sky as constellations.
- Details at https://devpost.com/software/citrus_hacks

DYNAMIC FLUID-FILM INTERFEOMETER, CAPSTONE
SEPTEMBER 2019 – JANUARY 2019

- Built an experimental apparatus that used thin film interference patterns to study the properties of complex fluid foams (particularly beer foam)
- Devised a method for generating small individual bubbles (in the range of 1 mm), a complex process that involves a high degree of understanding of interfacial fluidics
- Used rapid prototyping, quick iteration, and experimentation to complete the project in only 4 months

VIRTUAL REALITY SURGERY, CAPSTONE
SEPTEMBER 2018 - APRIL 2019

- Worked with VR technology to design algorithms in Python and C++ to identify and manipulate shapes in 3D
- Developed a novel algorithm for 3D shape identification
- The capstone course contained a substantial communication component including writing detailed and professional project proposals, holding bi-weekly meetings to set goals and keep accountable to previous goals and presenting the team's work to sponsors, instructors and classmates

UBC ROCKET, 100km TEAM
SEPTERMBER 2017 - JULY 2018

- Member of a student rocketry team whose goal is to put a rocket into space (100km up to a location called the Karman line) in a 3-year timeframe.
- Dimensioned the nozzle and combustion chamber based on mission requirements

VOLUNTEER EXPERIENCE

STUDENT GOVERNMENT, UBC, VANCOUVER
SEPTERMBER 2015 - PRESENT

- Most recently the Graduate Representative for the UBC Engineering Physics Student Society; role includes supporting plans for the graduation ceremony, planning a grad trip to Portland and representing the needs of the Eng Phys graduating class
- Past roles include First Year VP, Second Year Rep, E-Week Rep, Academic Rep and Speaker

EXTRACURRICULAR INVOLVEMENT

- Recreational Beach Volleyball Player: work league, HOPE Volleyball charity event and UBC Rec intramural teams
- Member of the Golden Key Honours Society
- Member of the UBC Latin Dance Club, learning to Salsa and Bachata
- Avid Trivia Player, winner of Genius Bowl and E-Week trivia. Plays weekly with pub team
- Past member of Engineers Without Boarders UBC, organized a charity gala to send members to volunteer abroad
- Created a board game, a creative project that has been an ongoing passion. Currently turning this into an online game using the Unity Engine

Interests include economics, art history, world history, literature, reading, math, swimming, saxophone, rock-climbing, hiking, skiing, running and travel