Matthew Leung

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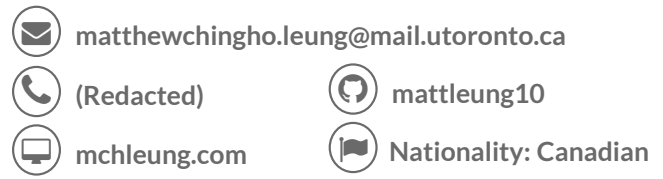(Redacted)
mchleung.com
mattleung10
Nationality: Canadian

Education

B.A.Sc. in Engineering Science
University of Toronto | 2018 - Present
- Specializing in Engineering Physics
- Minor in Artificial Intelligence Engineering

Skills

Software Development
Languages
Python • C/C++ • Java • MATLAB
Libraries and Frameworks
NumPy • SciPy • Pandas • OpenCV • PyTorch • TensorFlow • Astropy
OS
Linux • Windows

Hardware
Arduino • Raspberry Pi • Verilog • Embedded Systems

Graphics, Media, & Typesetting
Photoshop • After Effects • Vegas Pro • Figma • LaTeX

Optical Design
Zemax OpticStudio

Other Experience

- **Caltech** GROWTH Astronomy School (2020)
- **George Brown / UofT MIE** Basic Machining Course Certification (2019)

Relevant Coursework

AST320: Intro. to Astrophysics
PHY356: Quantum Mechanics I
PHY354: Advanced Classical Mech.
PHY327: Advanced Physics Lab
ECE358: Foundations of Computing
CSC384: Intro. to Artificial Intelligence

Hobbies & Interests

- Photography
- Stop Motion Animation
- Reading about History
- Playing Guitar

Work Experience

Harvard-Smithsonian Center for Astrophysics – *Research Intern*
January 2022 - Present
- Working under Dr. Andrew Szentgyorgyi on a **fiber mode scrambler** for **G-CLEF**, a spectrograph for the Giant Magellan Telescope

University of Toronto – *Astrophysics Research Assistant*
May 2021 - Present
- Working under Prof. Dae-Sik Moon to study a **young Type II-L supernova**
- Analyzed a **large dataset (>230GB)** of images with **Python** to determine supernova intensity over time; fitted models to light curves

University of Toronto – *Optical Engineering Research Assistant*
May 2020 - Present
- Working under Dr. Shaojie Chen to correct **hyperspectral imaging distortion**
- Designed, analyzed, and optimized optical systems with **Zemax OpticStudio**
- Used **k-means** and other methods to fit 3D data in **Python**; used ZOS-API with **MATLAB** to efficiently simulate optical performance data (*see code here*)
- Created and submitted a poster to the **Royal Astronomical Society** Early Career Poster Exhibition (*poster link here*)

National University of Singapore – *Nanosystems Research Assistant*
May 2019 - August 2019
- Worked under Prof. Ghim Wei Ho to investigate surface plasmon resonance in **photocatalytic hydrogen generation** and **solar reflective nanofilms**
- Wrote a **Python** script to process and convert type T thermocouple readings from an ADC; worked safely with **high voltages (>17.5kV)** and **hazardous substances**

Extracurriculars

UofT Machine Intelligence Student Team – *Project Developer*
September 2020 - Present
- Created a custom Convolutional Neural Network in **TensorFlow** for real estate price prediction in Toronto; applied transfer learning (*see code here*)

Projects

GoTo Telescope Mount
- Alt-azimuth telescope mount controlled by a Raspberry Pi and Arduinos, for a 4.5-inch telescope; programmed with **Python and C/C++** (*see project here*)

Selected Awards

UofT Astronomy SURP Research Fellowship ($9,500 ×2)		2020, 2021
UofT Engineering Competition 2nd Place, Programming Category		2021
IEEE Toronto Scholarship ($2,000)		2020
Hack The 6ix Best use of Google Cloud Prize		2020
Electro-Federation Canada Scholarship Award ($1,000)		2019
UofT Division of EngSci ESROP Global Research Fellowship ($4,000)		2019
UofT Bennett Scholar and FASE Admission Scholarship ($15,000)		2018
TransCanada Community Leaders Scholarship ($1,000)		2018