

Le Zhang

4B Honours Physics | Computing Minor

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Technical Skills

- **Programming Languages:** Python, C/C++, C#, Rust, Bash
- **Scientific Tools:** MATLAB, QuTiP, LabVIEW, Matplotlib, NumPy, SciPy
- **EDA/Hardware:** Vivado, Verilog
- **Other Tools:** Git, Linux

Experiences

Software Developer

University of Waterloo | Sept. 2024 – Dec. 2024

- Developed **Web APP** and **Web API** using the **ASP .NET core**, and optimized **SQL queries** based on **EF framework**
- Conducted comprehensive data testing to verify the accuracy, completeness, and consistency of data processed by endpoints, using **MStest**
- Collaborated with the Information System Specialist to develop software solutions supporting academic administration processes, focusing on delivering requirements to internal faculty and staff teams

Instructional Support Assistant

University of Waterloo | Jan. 2024 – Apr. 2024
May. 2025 – Aug. 2025

- Supported course content delivery and grading in CS136 (Data Structures and Algorithms) and CS231 (Algorithmic Problem Solving), creating automated testing pipelines using **Python** and **C++**
- Developed shell scripts for pre-compilation content verification, reducing server computational load
- Improved assignment testing runtime from 8 minutes to 2 seconds through algorithmic optimization

Web Developer

University of Waterloo | Sept. 2023 – Dec. 2023

- Managed website content using the University of Waterloo Development Kit, leveraging extensive **HTML**, **CSS**, and **JavaScript** knowledge
- Developed **Python** scripts to automate website accessibility checks through **multi-threaded**, enhancing efficiency and accuracy beyond manual methods
- Ensure website responsiveness and accessibility on various devices

Audio-visual Events Assistant

University of Waterloo | Jan. 2023 – April 2023

- Record and edit with professional video equipment/software **Final Cut Pro**
- Developed a **Python**-based **equipment management software** to streamline event setup processes
- Operated live PA systems and performed multi-channel audio mixing for various university events

Projects

CPU Emulation

2024 - 2025

- Designed and implemented physical circuits on **breadboard** using logic chips
- Built and tested a hardware-based CPU prototype on **FPGA** using **Verilog**, validating functionality through simulation and synthesis
- Designed a **Python**-based software simulation of CPU instruction sets and memory operations to explore low-level computational logic
- Created a bitwise instruction representation mirroring hardware behavior, integrating **I/O** and **memory management** modules

Computational Physics Simulation

2021 – Present

- Built computational models of physical systems using **Python** and **C++**
- Developed multithreaded algorithms to improve simulation efficiency
- Visualized and validated results using **Matplotlib**, with interest in extending models for **quantum systems**

Education

University of Waterloo

2020 – Present

- Candidate for B.Sc. in Honours Physics with Computing Minor
- Relevant Coursework: PHYS234, PHYS334 (Quantum Mechanics), PHYS242, PHYS342 (Electricity and Magnetism), PHYS249, PHYS349 (Computational Physics) etc.

Activities and Awards

- Excellent Academic Standing | 2021-2024
 - First Robotic Competition – General Motor industrial design award | 2018
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