Howard Li

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EDUCATION

University of British Columbia, Vancouver ***Sep 2021 - Present***

Bachelor of Applied Science - Major in Engineering Physics | Average: 94% (3.97 / 4.0 GPA) | Graduation: May 2026.

SKILLS

Programming Languages: Python, Java, C/C++, Rust, HTML, CSS, JavaScript, SQL, Bash, MATLAB, Vite.

Python Libraries: NumPy, SciPy, Pandas, Matplotlib, Hugging Face Libraries, Keras, Beautiful Soup, OpenCV, LMFIT.

Computer Software: Git/GitHub, Linux, Visual Studio (Code), FPGA, Gradle, Docker, Microsoft Office (Word, Excel), CAD Software (SOLIDWORKS, Autodesk AutoCAD/Inventor, Onshape), Blender. Highly proficient in LaTeX. Learning to use Typst.

Electrical & Mechanical: Soldering, oscilloscopes, signal generators, multimeters, circuit simulation/analysis, STM32 microprocessors, 3D printing, PCB design.

WORK EXPERIENCE

Large Language Model (LLM) Research & Development Tokyo, Japan

Social Informatics Laboratories, NTT, Inc. ***May 2025 - Aug 2025***

- Implemented a novel token sampling method into Hugging Face's "transformers" framework to reduce text repetition in state-of-the-art LLMs, outperforming existing methods by over 50%.
- Employed mechanistic interpretability techniques (e.g. Sparse Autoencoders, "persona vectors", "feature steering") to monitor and correct LLM behavior, improving models' accuracy and informativeness.
- Demonstrated a high level of Japanese proficiency, successfully presenting technical results to peers in a foreign language.

Undergraduate Research Assistant Vancouver, Canada

Quantum Devices & Ultrafast Coherent Control Group, UBC Physics & Astronomy ***May 2024 - Aug 2024***

- Utilized Python libraries (Matplotlib, LMFIT) in conjunction with Microsoft Excel to perform non-linear regression and statistical tests (e.g. chi-squared) on experimental signals to inform the direction of future research.
- Aided in the setup and execution of low-temperature optical experiments with liquid (superfluid) helium, clearly communicating technical information to supervisors and suggesting improvements for sources of experimental error.
- Improved existing programs and data analysis scripts, optimizing code to speed up data processing upwards of 70%.

Learning Hub Rover Vancouver, Canada

UBC Centre for Teaching, Learning, and Technology ***Jan 2023 - April 2023***

- Assisted UBC faculty and students alike in solving technical issues related to teaching software, ensuring client satisfaction and managing multiple tasks simultaneously via strong organizational and interpersonal skills.
- Contributed to frontend development of a student statistics React.js web app for the Canvas Learning Management System.

TECHNICAL PROJECTS

Machine Learning Virtual Robot Vancouver, Canada

Python, Neural Networks, Computer Vision & Graphics ***Sep 2023 - Dec 2023***

- Implemented color recognition and edge detection functionality using OpenCV and NumPy, working with Linux and Bash.
- Trained a convolutional neural network in Keras to perform optical character recognition, accurately identifying characters despite blurry image data, images taken at odd angles, etc.
- Placed 3rd in a cumulative robot competition featuring over 20 teams, through optimized testing and efficient teamwork.

Autonomous Tape-Following Robot Vancouver, Canada

C/C++, Embedded Systems, Lab Equipment, Manufacturing Tools ***Jun 2023 - Aug 2023***

- Programmed and tested a PID control loop and IR signal detection routine for STM32 microprocessors and Arduino boards.
- Increased robot driving speed by over 3x via rigorous tuning and optimization of control flow/movement code in C/C++.
- Built circuits and physical prototypes using 3D printers, heat guns, soldering irons, oscilloscopes, digital multimeters, etc.

For more details relating to technical projects, my portfolio is available at https://howard-2718.github.io/portfolio/index.html.