Gil Hwang

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Education

University of Toronto September 2018 – Present

Bachelor of Applied Science, 4th year

Major in Computer Engineering | Minor in Artificial Intelligence Engineering

CGPA: 3.90/4.0, Dean's List all semesters

Relevant Coursework: Software Design and Communication, Algorithms and Data Structures, Operating Systems, Applied Fundamentals of Deep Learning, Introduction to Machine Learning

Experience

Software Developer Intern May 2023 – Present

Ericsson *Ottawa, ON*

- Developed a **Machine Learning** prototype software using **C++** that outperformed the current radio product
- Developed a real-time AI model using **Python** that interacts bi-directionally with the current radio product, by utilizing both **Reinforcement Learning** and **Deep Learning**
- Developed a simulation software using **Python** that trains a **neural network** model to perform QPSK demodulation, which outperforms the error rate of the current radio product
- Verified reliability of the software by implementing unit tests using **Google Test** and conducting end-to-end test in a simulated environment
- Presented an overview and the performance result of AI projects multiple times to both technical and non-technical audience, such as managers, developers and customers
- Continuing to contribute to the currently involved projects as a part-time basis

General Member August 2022 – December 2022

University of Toronto Autonomous Rover Team (UTRA ART) *Toronto, ON*

- Contributed into **Computer Vision** area of the autonomous rover using **Python** and **PyTorch**
- Researched on the application of a pre-trained **YOLOPv2** model on lane detection

Computer Technician July 2020 – March 2022

Republic of Korea Navy *Republic of Korea*

- Assisted satellite communication between warships by receiving and sending confidential military documents
- Lead IT support team that troubleshoots general network, software and hardware issues such as network disruption and computer/printer malfunction

Projects

AI GPU Optimization | *C, CUDA* April 2024 – Present

- Optimized an AI simulation algorithm developed by a startup company, PRE, by using **NVIDIA GPU**
- Researched various CUDA optimization techniques, such as Parallel Reduction
- Converted the existing software to GPU-compatible program using **CUDA C** in order to efficiently run AI simulations in parallel, improving the total simulation time to be **20 times faster** than the original software

Waste Classification using Deep Learning | *Python, PyTorch* Septebmer 2022 – December 2022

- Developed a deep learning model using **Python** and **PyTorch** that classifies waste images into five different waste categories, such as coffee cups or organic wastes
- Achieved **final accuracy of 84%** with a testing dataset, and received grade of 100% on the final presentation of the *Applied Fundamentals of Deep Learning* course

Open Street Map (OSM) Mapper | *C++, GTK* January 2020 - April 2020

- Developed a graphical and interactive map application with **C++** based on **Open Street Map(OSM)** data
- Applied path-finding algorithms, such as **Dijkstra and A* search** to efficiently compute shortest path between intersections

Technical Skills

Languages: C, C++, Python, CUDA, Java
Developer Tools/Platforms: Linux, Git, Visual Studio Code, Eclipse, Jira, Gerrit Code Review, GitLab
Libraries: PyTorch, GoogleTest, Tensorflow, NumPy, pandas, protobuf, onnx, GTK