Hyungwoo Martin **Lee**

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EDUCATION

Carnegie Mellon University
B.S. in Electrical and Computer Engineering
minor in Machine Learning
Pittsburgh, PA | Expected May 2025
Major GPA: 3.85 / 4.0

M.S. in Electrical and Computer Engineering: AI/ML Concentration
Pittsburgh, PA | Expected May 2026

SELECTED COURSEWORK

- Pattern Recognition for Computer Vision
- Machine Learning
- Machine Learning with Large Datasets
- Distributed Systems
- Computer Systems
- Principles of Imperative Computation

SKILLS

Languages
Python • Go • C • Rust • SystemVerilog

Tools
Shell scripting • YAML • Helm • Linux/Unix CLI • Git • AWS (EC2, EMR, S3) • PySpark • Pandas • NumPy • Vim

Frameworks
PyTorch • TensorFlow • Kubernetes • Docker • KinD • DataBricks

LINKS

WORK EXPERIENCE

FuriosaAI | Software Engineer Intern
Seoul, South Korea | June 2024 – Aug 2024

- Thrived in a **fast-paced startup environment**, adapting to rapid changes and contributing to the company's evolving technology stack
- Engineered a **Kubernetes** test environment using **KinD**, automating **end-to-end testing** for FuriosaAI's chip stack; developed **shell scripts** to optimize worker node configurations
- Implemented a **Rust-based** setup-teardown framework for System Management Interface (SMI) tests, boosting test writing efficiency by **21%**
- Developed critical **SMI APIs**, enhancing system functionality and integration capabilities
- Created a tool to optimize **Go bindings**, achieving **87.5% efficiency improvement** in struct field management

Republic of Korea Army | Squad Leader / Peer Counselor / Sergeant
Gyeongsangnam-do, Korea | Aug 2020 – Feb 2022

- **Led and managed** the development, health, morale, and welfare of **33 soldiers**
- Initiated and facilitated **peer-counseling sessions**, enhancing team communication and cohesion
- Recognized as a **"special warrior"** for exceptional performance and leadership skills

PROJECT EXPERIENCE

Distributed Bitcoin Miner / LSP protocol
Pittsburgh, PA | Sep 2023 - October 2023

- Engineered a reliable **transport layer protocol (LSP)** on UDP using **Go**, ensuring in-order packet delivery
- Implemented a **distributed Bitcoin mining system**, demonstrating **30% performance improvement** over single-miner setups
- Designed **fault-tolerant architecture** to handle network uncertainties and machine failures

Dynamic Memory Allocator
March 2023

- Developed a **high-performance dynamic memory allocator** for C programs
- Implemented advanced optimization techniques including **segregated free lists** and **immediate coalescing**
- Achieved **74.0% memory utilization** and **10,400 Kops allocation throughput**

Patent: Self-buoyant stretcher
April 2018 (Korea Patent Application Number:10-2018-0088971)

- **Led development** of an underwater self-buoyant stretcher for diver support in carcass preservation
- **Collaborated** with Korea Coast Guard to design, develop, and test the product
- Secured **patent** and **official approval** for use by Korea Coast Guard

RESEARCH

Yuejie Chi lab @ CMU | Research Assistant
Hybrid | May 2023 – April 2024

- Developed a scalable **RL scheduler** for **cloud resource optimization**, incorporating advanced concepts like **Domain Randomization** and **curiosity-driven exploration**
- Achieved **13% energy savings** through improved decision-making in cloud resource allocation
- Designed a novel **pretraining strategy** for **DQN** using **Automatic Domain Randomizations**
- **Co-authored** a paper on the developed techniques, submitted to **GLOBECOM 2024**