DongWoo Goo

Software Engineer & AI/ML Researcher

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GooDongWoo

Education

B.S. in Electronic Engineering and Computer Science (Double Major)

Seoul, Korea

Kyung Hee University — *Mar. 2019 - Feb. 2025*

- GPA: 4.31/4.5 (Valedictorian in College of Electronics and Information)

Achievements

Academic & Programming Competitions — *2024*

- University President's Award at Graduation (Top of College)
- ICPC Seoul Regional 2024 - Honorable Mention (43rd place, Team: nEwBiE)
- Kyung Hee Programming Competition 2024 Fall - 2nd Place
- Best Poster Award - Kyung Hee University Undergraduate Research Conference

Certifications & Training — *2023-2024*

- LG Aimers 4th & 5th Generation - AI/ML Bootcamp Completion
- Naver Data Science BoostCourse - Lead Booster (Team Leader)
- Professional Business Coaching Certification - CMOE Korea
- TOEIC: 800, OPIc: IM1

Experience

SSAFY Embedded Track - 13th Generation

Seoul, Korea

Samsung Software AI Academy for Youth (SSAFY) — *Jan. 2025 - Present*

- Intensive half-year software development bootcamp focused on embedded systems
- Algorithm, C/C++, Linux System Programming, IoT, Qt GUI Development

WINLab, Kyung Hee University

Suwon, Korea

Undergraduate Researcher — *Jul. 2023 - Dec. 2024*

- Developed dynamic ensemble strategies for multi-exit neural networks using entropy-based selection
- Implemented distributed training pipeline using PyTorch DDP, achieving 10x performance improvement
- Published research in SCIE journal with 1.66%p performance improvement on CIFAR-100

Computer Architecture Course, Kyung Hee University

Seoul, Korea

Teaching Assistant — *Mar. 2023 - Jun. 2023*

- Supported 40+ students in understanding computer architecture fundamentals
- Selected based on outstanding academic performance in previous semester

Key Projects

SSAFY 1st Semester Final Project

AGV System Development (Team Leader) — *May 2025*

- Designed & implemented complete edge-cloud hybrid architecture for AGV system
- Developed AGV control system, Raspberry Pi edge server, and AWS EC2 central server
- Integrated MQTT protocol for device communication and socket programming for server communication
- Led 4-person team through full-stack embedded system development

Graduate-level Research Project

Multi-Exit Neural Network Research — *2024*

- Developed entropy-based dynamic ensemble strategy for multi-exit networks
- Implemented distributed training using PyTorch DDP, solving data pipeline bottlenecks
- Achieved 1.66%p improvement on CIFAR-100 and 0.61%p on ImageNet-1K
- Published in J-KICS journal as co-first author

Linux System Programming Project

TCP Multi-User Chat Server *2024*

- Implemented multi-threaded chat server supporting 5+ concurrent clients
- Applied mutex synchronization for thread-safe message broadcasting
- Designed robust error handling for client disconnection and server shutdown

LG Aimers Hackathon

Production Defect Prediction Model *2024*

- Analyzed automotive display production data (464 features, 40K+ samples)
- Resolved severe class imbalance using SMOTE and ensemble techniques
- Achieved F1-score of 0.169 with weighted AdaBoost ensemble approach

Personal Project

Chrome Extension Development *2024*

- Developed grade notification system for university students using JavaScript
- Implemented background processing with Chrome APIs for automated checking
- Applied secure authentication and local storage for user data protection

Publications

Journal Papers

- **Co-first Author:** "Multi-Exit Faster R-CNN(MEF): An Approach to Control the Optimal Tradeoff between Latency and Accuracy under Time-Varying Computing Resources," J-KICS, Vol. 50, No. 2, pp. 234-244, Feb. 2025
- **Thesis:** "Dynamic Ensemble Strategy for Multi-Exit Neural Network: Enhancing Model Performance through Entropy-based Exit Selection," Kyung Hee University, 2025

Technical Skills

Programming Languages	C/C++, Python, JavaScript
AI/ML Frameworks	PyTorch , TensorFlow, scikit-learn, NumPy, Pandas
System Programming	Linux System Programming, Socket Programming, Multi-threading, IPC
Embedded Systems	Raspberry Pi, Arduino, ESP32, GPIO Programming, MQTT, IoT
GUI Development	Qt Framework (PySide), HTML/CSS
Tools & Technologies	Git, AWS EC2, Firebase, Node-RED, LaTeX
Databases & Cloud	SQL, Firebase Realtime Database, AWS Services

Leadership & Activities

Mentoring & Education *2023-2024*

- University Mentoring Program: Mentored 4 junior students across 2 semesters
- Lead Booster at Naver Data Science BoostCourse (Team Leadership Role)
- KT Online Education: ML/DL instructor for middle school students

Republic of Korea Army

Military Service *2020-2022*

- Commendation from Division Commander for outstanding service
- Selected as "Special Warrior" for exceptional performance

Languages

Korean	Native
English	Conversational (TOEIC: 800, OPIc: IM1)