Hoeun Lee

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Google Scholar · Blog · ·

Education

• Konkuk University, Seoul *March 2020 − Present*
Bachelor's Degree expected in Computer Science and Engineering Seoul, Korea
- Overall GPA: *4.48 / 4.50*
- Major GPA: *4.50 / 4.50*
- Top Ranked Student (1/233) for 5-semester in Dept. of Computer Science and Engineering
- Republic of Korea Air Force; Sergeant Honorable Dischared (Jan 2022 - Oct 2023)
- Expected to Early Graduate in August 2025

• Chungnam Samsung Academy High School *March 2017 − February 2020*
Honor and High School Diploma of Information Technology and Engineering Asan, Chungchungnam-do
- Grand Prize (1st) awarded Paper in School Academic Research Conference for Engineering (2018)
- Student President of the IT Diploma Students (2018)

Research Interests

• Natural Language Processing − LLM, Generative AI for Low-level System Optimization, Query Optimization and Processing
• Deep Reinforcement Learning − Language Model Alignment using Deep RL from Feedback (RLHF), VLAM (Robotics)

Experiences

• Undergraduate Research Intern, AIDAS Laboratory *July 2024 − Present*
Artificial Intelligence, Big Data and System Laboratory, Studying System AI Seoul National University, Seoul
- Department of Electrical and Computer Engineering
- Research on LLM, Generative AI for Low-level System Optimization
- Studying on Language Model Tuning using Deep RL (RLHF, RLAIF)
- Advised by Prof. Jaeyoung Do

• Undergraduate Research Intern, DMS Laboratory *March 2021 − May 2024*
Distributed Multi-Media System Laboratory, Deep Reinforcement Learning Research Team Konkuk University, Seoul
- Department of Computer Science and Engineering
- Multi-Agent Deep Reinforcement Learning on Robotics Domain
- Research on Optimization using Deep Learning and Hyper-Heuristic Algorithm
- Advised by Prof. Dugki Min

Published Papers

1. S Jeon, Hoeun Lee, VK Kaliappan, TA Nguyen, H Jo, H Cho, D Min (October 2022), **"Multiagent Reinforcement Learning Based on Fusion-Multiactor-Attention-Critic for Multiple-Unmanned-Aerial-Vehicle Navigation Control"**, MDPI Energies 15 (19), 7426
2. H Jo, Hoeun Lee, S Jeon, VK Kaliappan, TA Nguyen, D Min, JW Lee (September 2021), **"Multi-Agent Reinforcement Learning-based UAS Control for Logistics Environments"**, Asia-Pacific International Symposium on Aerospace Technology, 963-972
3. S Yang, M Lee, Hoeun Lee, Y Kim (September 2018), **"Aircraft Identification and Route Tracking using a Model Satellite"**, 2018 KSAS Fall Conference, 431-434

Scholarship

• National Science & Technology Excellence Scholarship *2024 − 2025*
Korea Government Full Scholarship by Ministry of Science and ICT for 2 years Korea Student Aid Foundation

• Merit-based Academic Excellence Scholarship *2020 - 2021*
2020-2nd semester, 2021-1st and -2nd semester Konkuk University

AWARDS AND HONORS

• Dean's List *2020 − 2024*

Academic Excellence Award − 4 semesters (2020-2nd, 2021-1st/2nd, and 2024-1st) College of Engineering, Konkuk University

• Seoul National University Dental Hospital Healthcare AI Competition *December 2023*

Grand Prize (1st) Seoul Nat'l University Dental Hospital

◦ Development of an AI Model for Classifying Dental Cavities using Synthesized Oral Image Data

• 2023 Military AI Competition (MAICON) *December 2023*

Fourth Plage (4th) Ministry of National Defense, Ministry of Science and ICT

◦ Deepfake Video Detection for Intelligent Cyber Threat Response in Military

◦ Video and Image Classification Task

• 2023 Air Force Creativity and Innovation Idea Contest (Air Force AI Hackathon) *November 2023*

Fourth Place (4th) in Artificial Intelligence (AI) Part Republic of Korea Air Force

◦ Target Identification using Sea-based Radar Range-Doppler Map (Image Classification Task)

◦ Instance Segmentation of Impact Zones in Air-to-Ground Missile Shooting Scoring Image

• LH City Digital Twin Ideation Competition *April 2023*

Participation Prize (4th) Korea Land & Housing Corporation (LH)

◦ Solar Power Profit and Loss Calculation Service for Individual Households using Sunlight Analysis and Machine Learning-based Solar Power Expectation Algorithm

• 4th Kookmin Bank Software Development Contest (KBSC 2021) *December 2021*

Grand Prize (1th) Kookmin Bank

◦ ESG Educational Metaverse to Help Develop Environmental Awareness

◦ Team Leader and Full-Stack Developer (Unity/C#, Django/Python)

• 2nd Kookmin Bank Software Development Contest (KBSC 2019) *December 2019*

Excellence Prize (2th) in High School Student Part Kookmin Bank

◦ Software for Relieving Tension using Virtual Reality and Machine Learning

◦ Developer (Unity/C#, Wearable Hardware Devices to Measure Heart Rate and Voice Volume with C, Python) and Machine Learning Algorithms to Measure Tension based on User Behaviour and Bio Data

• 2018 Can-Satellite Competition Korea (CANSAT) *September 2018*

Excellence Prize (2th) in High School Student Part Ministry of Science and ICT, SaTReC, KAIST, KARI

◦ Aircraft Identification and Route Tracking by Doppler Effect with a Model Satellite

◦ Develop Model Satellites, Ground Station Program, Object-Tracking by Image Processing

• 3rd National High School Club Software Development Competition *October 2018*

Grand Prize (1th) and Popularity Award Ministry of Science and ICT, IITP, KAIST

◦ Software for Improving Presentation Power using Virtual Reality and Machine Learning

◦ Developer (Unity/C# and Machine Learning Algorithm with Python)

TECHNICAL SKILLS

• **Programming Language**: Python, C/C++, MATLAB, SQL and Swift

• **Language**: English (advanced) and Korean (native)

• **AI/ML Tools**: PyTorch, LangChain, OpenMMLab, ML-Agents (Unity) and Isaac Sim (NVIDIA)

• **Development**: Git, Docker, OpenCV, Unity, Django, MySQL, PostgreSQL and Sqlite

KEY COURSES

• **Artificial Intelligence**: CS285(Deep Reinforcement Learning), Linear Algebra, Signal Processing, Artificial Intelligence, Data Science, Computational Theory, Digital Image Processing, Discrete Mathematics, Probability and Statistics, Open Source SW Project 1 (Deep Learning), Open Source SW Project 2 (Deep Reinforcement Learning), Stochastic Process

• **Computer Science**: Operating System, System Programming, Computer Network, Algorithm, Data Structure, Object-Oriented Programming, Database, Software Engineering, C/C++/JAVA Programming, Numerical Analysis