MINJAE LEE

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Research Goal

I aim to build a cognitive physical system that can **understand physical constraints** within a scene, **reason about potential interactions** based on those constraints, and leverage these inferences to perform tasks through **natural language interaction with humans**.

Education

Seoul National University — Seoul, Republic of Korea
B.S. in Computer Science and Engineering (GPA: 4.11/4.30) — *Mar. 2019 – Present*

Georgia Institute of Technology — Atlanta, GA, Unites States of America
Exchange Student Program, Computer Science (GPA: 4.00/4.00) — *Jan. 2022 – Jun. 2022*

Daegu Science High School — Daegu, Republic of Korea
High school for gifted students in science and mathematics
(Mainly studied Physics & Computer Science) — *Mar. 2016 – Feb. 2019*

Experience

SNU Machine Perception and Reasoning Lab — Seoul, Republic of Korea
Research Intern — *Sep. 2024 – Present*

- **Robotic Grasping Affordance Detection:**
  Proposed and implemented a novel methodology to infer and visually segment safe grasping regions in a zero-shot manner using LLM and image generation models.
- **Robots that ask questions & Exploit information:**
  Developing an automated question generation system based on a task progress tracking system, which quantifies the current state of a task into an interpretable metric to infer relevant questions to ask.

Turing — Seoul, Republic of Korea
AI Researcher & Engineer — *Jul. 2022 – Aug. 2024*

- Constructed a controllable AI model to calculate students' abilities and predict their behavior, leveraging domain experts' knowledge to handle various situations.
- Built a model that not only achieves high accuracy but also shows behavior which aligns with human intuition.
- Devised a LLM utilization idea for flip learning in math education and pipeline to implement it, leading to OpenAI selecting Turing as a partner company.
- Fully brought out LLM's mathematical abilities by making it utilize experts' knowledge and applied it to the company's product.

Georgia Institute of Technology - DCSL Lab (ML subteam of RC-VIP team) — Atlanta, GA, USA
Undergraduate Student Researcher — *Jan. 2022 – May 2022*

- Constructed an AI model that can predict a vehicle's future trajectory by learning its dynamics.
- Increased the lab's prediction accuracy by a factor of ten.

Artificial Intelligence Institute of Seoul National University — Seoul, Republic of Korea
Research Intern — *Jun. 2021 – Sep. 2021*

- Constructed an AI model that can model e-commerce shoppers and predict their behavior.

Publications

[J01] Kwangho Lee, Youngdo Kim*, Youngsi Kim*, Juho Kim*, **Minjae Lee***, Joonho Kong. (2018). “Approximate processing hardware design and implementation of exponential function presented with Taylor series for embedded systems.” *Proceedings of Symposium of the Korean Institute of communications and Information Sciences*, pp. 38-39.

[C01] Kim, Hyeondey*, Jinwoo Nam*, **Minjae Lee***, Yun Jegal and Kyungwoo Song. (2023). “Leveraging Skill-to-Skill Supervision for Knowledge Tracing.” In *AAAI AI in Education (AI4ED) Workshop* - (2 citations as of Sep. 2025)

[C02] Sungyeon Park, **Minjae Lee**, Jihyuk Kang, Hahyeon Choi, Yoonah Park, Juhwan Cho, Adam Lee and Dongkyu Kim. (2024). “VLAAD: Vision and Language Assistant for Autonomous Driving.” In *WACV Workshop on Large Language and Vision Models for Autonomous Driving (LLVM-AD)* - (44 citations as of Sep. 2025)

** Denotes equal contribution.*

Patent

Minjae Lee, Jinwoo Nam. (2023). “Method, Program, and Device for Quantifying Correlation Between Units.” Korean Patent 10-2023-0075514.

Honors & Awards

National Science & Technology Scholarship
2-year full tuition (excluding a 2-year leave of absence to work at Turing) 2021 - 2024

Mirae Asset Global Exchange Student Scholarship - $6000 Feb. 2022

Special Appreciation Award by Char, Kook Heon, Dean, College of Engineering, SNU
Appreciation for dedicated efforts to foster young engineers Jul. 2021

Other Merit-Based Scholarships from the Seoul National University - $3000

Projects

Creating Robot AI for Natural Language Task Execution - Seoul National University 2024

Adapter Module Implementation in Vision Transformer - Georgia Institute of Technology 2022

Kickstarter Event Success Prediction - Georgia Institute of Technology 2022

Virtual Clothes Try-on Using Computer Vision and Deep Learning - Seoul National University 2021

Slow Light Quantum Memory - Gwangju Institute of Science&Technology : Pre Undergrad Research Program 2017

Diagnosis and Prescription of Disease using KNN Algorithm - Daegu Science High School 2016

Activities and Societies

Member, AttentionX (Deep Learning R&D Club) 2023 – 2024

- Researched interpretable decision making of autonomous vehicle (Refer to VLAAD)

Mentor Team Leader, AI TECH PLAY Program 2021

- Taught students how to build an autonomous vehicle.

Steering Committee Member, Daegu Science High School Code Jam 2017

Member, Informatica (Daegu Science High School Information Science Club) 2016 – 2018

Skills

Programming: Python, C/C++, JAVA, SQL
Software and Tools: Pytorch, CUDA, ROS, Gazebo, Docker, Unity, Git, Linux
Languages: English (Fluent; TOEFL 110), Korean (Native)