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: 4.12/4.30) — *Mar. 2019 – Present*

Georgia Institute of Technology — Atlanta, GA, United States of America
Exchange Student Program, Computer Science (GPA: 4.00/4.00) — *Jan. 2022 – May. 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.
- **Causal Action Scoring via Progress-Based Value Learning in VLAs:**
  Proposed a hierarchical framework that learns an intrinsic reward function by distilling the gradient of a goal-conditioned value function into an action-value predictor.
  This approach allows the model to quantify the causal contribution of actions toward task progress in offline settings, enabling robust planning for cyclical and long-horizon problems via residually updated state contexts.

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 Jan. 2026)

[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)* - (53 citations as of Jan. 2026)

** 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.
  Used the MIT LL RACECAR environment and, through the program lead (an MIT graduate student), was granted access to the official MIT instructor-only repository.

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 106), Korean (Native)