Jihun Moon

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EDUCATION

Seoul National University (SNU) — **Seoul, South Korea**
Bachelor of Science in Mechanical Engineering — Expected 08/2026
Minor in Philosophy — TOEFL iBT : 105 / 120
GPA : 3.74 / 4.00

PUBLICATIONS

SPREAD: Scalable Pre-trained World Model for Adaptive Dynamics Model
Jihun Moon, Seong-Woo Kim — Paper Link
Under Review at RA-L 2026 — Submitted 11/2025

Beyond Destinations: Instruction-Aware Graph Path Planning and Navigation with OpenStreetMap
Donghwi Jung, Jihun Moon, Jiyang Lee, DongYeop Shin, Jungjae Lee, Jinhee Kim, Seong-Woo Kim — Paper Link
Under Review at ICRA 2026 — Submitted 09/2025

RESEARCH EXPERIENCE

Autonomous Robot Intelligence Laboratory, SNU — **Seoul, South Korea**
Undergraduate Researcher — 05/2025 – Present
Advisor: Prof. Kim, Seong woo

- **Independent Research on World Model:** Proposed online continual learning method for pre-trained world model architecture, designed for real-time adaptation to diverse environmental changes in continual robot learning
- **Language-Guided Navigation Planning:** Designed planning framework using LLM and VLM to extract destination, route constraints, and avoidances from user instructions, and to generate and refine paths
- **Electric Vehicle Restoration and Control:** Reactivated a long-dormant electric vehicle by reconnecting electrical components, and integrated Arduino-based control system enabling keyboard operation
- **Paper review:** Reviewed paper submission for IEEE International Conference on Robots and Automation

Transformative Architecture Laboratory, SNU — **Seoul, South Korea**
Undergraduate Researcher — 08/2024 – 11/2024
Advisor: Prof. Yang, Jinkyu

- **Origami Actuator Fabrication:** Fabricated multi-DOF origami actuator capable of simultaneous folding and unfolding through 3D CAD modeling and structural design optimization

EXTRACURRICULAR ACTIVITIES

Humanoids Club 'SNU Humanoid Club' — **SNU**
President — 11/2025 – Present
Advisor: Prof. Kim, Seong woo

- Established Seoul National University's first student organization dedicated to humanoid robotics as a founding president, focused on full-scale humanoid development
- Leading hands-on operation of humanoid robots, competing in international competitions focused on autonomous task execution from natural language instructions
- Overseeing recruitment, project planning, and team management to build a multidisciplinary student research community

Robotics Club 'SIGMA' **SNU**
Member 03/2024 – 06/2024
- Prototyped line-tracing robot by applying motor control using Arduino; participated in Linux and Raspberry Pi workshop

Philosophy Academic Club 'Hapum' **SNU**
Member 09/2024 – 12/2024
- Discussed analytic philosophy, focusing on Dummett's and Putnam's arguments on realism

MILITARY SERVICE

Republic of Korea Army, Joint Security Area Battalion (JSA, United Nations Command) **Paju, South Korea**
Sergeant 12/2021 – 06/2023
- Served at South Korea's northernmost front-line outpost, conducting surveillance and security operations near the North Korean border

SCHOLARSHIPS

- SNU Merit-based Scholarship for Academic Excellence Awarded 08/2024
- SNU ME Additional school Scholarship Awarded 12/2024
- SNU Merit-based Scholarship for Academic Excellence Awarded 02/2025

SELECTED PROJECTS

Maze Solving Manipulation
Project for Course 'Dynamics and Control of Robot-Environment Interaction' 10/2025 – 12/2025
- Implemented an A-based path planner with a feedback trajectory tracking controller; achieved the top performance among all teams

Automatic Book Scanner 11/2024 – 12/2024
Project for Course 'Mechatronics'
- Designed and fabricated a multi-motor control system for automatic book scanner capable of page turning and synchronized screen transitions using a film suction pad mechanism

Autonomous Mini Vehicle 10/2021 – 12/2021
Project for Course 'Creative Engineering Design'
- Designed sensor-based mini vehicle operating through linkage mechanism instead of wheels; achieved 2nd place among all teams

SKILLS

Machine Learning & AI
- **Pytorch:** Enhanced ViT-based world model and Implemented LoRA-based finetuning
- **Reinforcement Learning:** Explored meta-RL method for adaptive control and policy learning

Robot Control & Dynamics
- **Model-based Control:** Implemented model predictive control integrated with learned world model
- **Control Theory:** Completed graduate-level course *"Dynamics and Control of Robot-Environment Interaction"*

ROS & MuJoCo
- **ROS 2:** Conducted high-level path planning and navigation for ROS-based quadruped robot project
- **MuJoCo:** Utilized control theory to MuJoCo-based manipulator control and motion planning

Programming
- **Python, Linux:** Used extensively in Python for both team and independent research projects