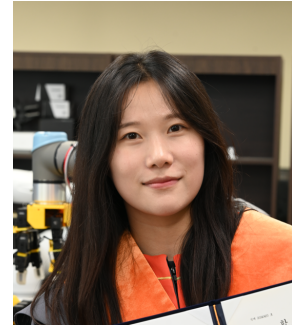


Young-Chae Son

I'm Youngchae Son, a Ph.D. student at Dongguk University in Seoul, working with Prof. Soochul Lim in the Interactive Robotics Lab. My research focuses on robot learning and planning with vision-language foundation models, including Vision-Language Models (VLMs) and Vision-Language-Action (VLA) models. I am particularly interested in enabling robots to make adaptive decisions in real-world environments where task-relevant information may be incomplete, ambiguous, or change during execution. My work explores multimodal perception, task planning, and adaptive manipulation, with an emphasis on integrating and prioritizing sensory observations for long-horizon execution on real robotic systems.



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Education

2025-Present	Dongguk University <i>Researcher, Mechatronics Engineering</i> Interactive Robotics Lab	📍 Republic of Korea
2023-2025	Dongguk University <i>M.S. in Mechatronics Engineering</i> Interactive Robotics Lab Advisor: Prof. Soo-Chul Lim	📍 Republic of Korea
2018-2023	Tech University of Korea <i>B.S. in Mechatronics Engineering</i> 2018-2021 Self-Education, Seoul National University of Education, Department of Home Economics	📍 Republic of Korea

Publications

Conference Paper 2026	See Selectively, Act Adaptively: Dual-Level Structural Decomposition for Bimanual Robot Manipulation Yoon-Ji Choi, Young-Chae Son , Soo-Chul Lim* <i>Under Review</i>
Journal Article 2026	Task-Aware Modality Selection for Multimodal VLA in Robotic Manipulation Young-Chae Son , Jung-Woo Lee, Yoon-Ji Choi, Dae-Kwan Ko, Soo-Chul Lim* <i>Under Review</i>
Journal Article 2026	ThermoAct: Thermal-Aware Vision-Language-Action Models for Robotic Perception and Decision-Making Young-Chae Son , Dae-Kwan Ko, Yoon-Ji Choi, Soo-Chul Lim* <i>IEEE Robotics and Automation Letters</i>
Conference Paper 2026	A nonmagnetic stepper motor for the automatic evaluation of magnetic field uniformity in Helmholtz coils Young-Chae Son , Sung-Jung Joo, Po-Gyu Park, Changjin Yun, Soo-Chul Lim*, Hyung-Kew Lee* <i>IEEE Conference on Precision Electromagnetic Measurements (CPEM)</i>

Journal Article 2026	MulPlanLM: multimodal robotic task planning with vision-language models and physical feed-back Young-Chae Son, DongHan Lee, Soo-Chul Lim* <i>Intelligent Service Robotics</i>
Conference Paper 2022	The Remote Robotic Arm Control Using Inertial Sensor and Image Recognition Ki-Jun Han, Young-Chae Son, Yang-Hee Lee* <i>Korean Society for Precision Engineering(KSPE)</i>
Conference Poster 2022	High SNR and High Frame Rate Analog Front-End ICs with Active Stylus for Capacitive Touch Screen Panels Young-Chae Son, Jae-Sung Ahn* <i>Europe-Korea Conference on Science and Technology (EKC), Marseille, France</i>

Selected Research Projects

Jul. 2025 – Present	Development of Intelligent Autonomous Manipulation Technology for Humanoids with Reduced Dependency on Real-World Data <i>Humanoid Manipulation, Robot Learning, Physical AI</i> Agency: Ministry of Science and ICT (MSIT) Research on intelligent autonomous manipulation technology for humanoid robots with reduced dependency on real-world data.
Mar. 2025 – Present	Robot Motion Generation AI based on Multimodal Vision/Tactile Information Driven by Language Model <i>Multimodal Robot Learning, Vision/Tactile Perception, Language Models</i> Agency: National Research Foundation of Korea (NRF) Developing robot motion generation methods based on multimodal vision and tactile information driven by language-model-based reasoning.
Aug. 2024 – Dec. 2024	Collecting Large-scale Robot Manipulation Data in Physical Environment <i>Robot Data Collection, Manipulation, Physical Environment</i> Agency: National Information Society Agency (NIA) Collected and organized large-scale robot manipulation data in real-world physical environments for robot learning and automation research.

Honors & Awards

Sep. 2025 – Present	Global Outstanding Talent Scholarship Full tuition waiver for Ph.D., Dongguk University.
2026	Best Paper Award BK21FOUR AIMS Center Winter Conference, Dongguk University.
2024	Grand Prize, 1st Place Transfer Student Counseling Mentoring Testimonial, Tech University of Korea.
2024	Grand Prize, 1st Place English Presentation Contest, Tech University of Korea.

Patent

Apr. 2026 **Method, Apparatus, System, and Computer-Readable Recording Medium for Robot Control Using Thermal Image Information**
Korean Patent Application, No. 10-2026-0067117.

Teaching Experience

Spring 2026 **Teaching Assistant, Autonomous Robotics**
Dongguk University
Autonomous driving practice class using ROS2 and TurtleBot Burger 3

Spring 2025 **Teaching Assistant, Autonomous Robotics**
Dongguk University
Autonomous driving practice class using ROS2 and TurtleBot Burger 3

Fall 2024 **Teaching Assistant, Computational Mechanics**
Dongguk University

Spring 2024 **Teaching Assistant, Autonomous Robotics**
Dongguk University
Autonomous driving practice class using ROS2 and TurtleBot Burger 3

Fall 2023 **Teaching Assistant, Fluid Mechanics**
Dongguk University

Presentations

Jun. 2026 **Selective Perception for Robot: Task-Aware Attention in Multimodal VLA**
Robot Learning Research Group Workshop, Center for Human-Centered Manufacturing Technology, Korea Institute of Industrial Technology (KITECH)

Feb. 2026 **ThermoAct: Thermal-Aware Vision-Language-Action Models for Robotic Perception and Decision-Making**
Locomotion and Manipulation Technology Research Group, Korea Robotics Conference (KRoC), Pyeongchang

Feb. 2026 **ThermoAct: Thermal-Aware Vision-Language-Action Models for Robotic Perception and Decision-Making**
Robot Learning Research Group, Korea Robotics Conference (KRoC), Pyeongchang

Work experience

2022-2023 **Undergraduate Research Intern**  Dongguk University of Korea
Interactive Robotics Lab
Oct. 2022 - June 2023