

## Gyeongmin Kim

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CONTACT INFORMATION	Department of Intelligent Robotics Helper lab ( <i>Advisor : Mun-Taek Choi</i> ) Sungkyunkwan University, Suwon 16419, South Korea	+82 10-3516-1968 hn04008@skku.edu gmkim97.github.io
RESEARCH INTERESTS	Human-Robot Interaction, Robot Learning, Data-driven Control, Deep Learning, Computer Vision	
EDUCATION	<b>Sungkyunkwan University, South Korea</b> Masters student in Intelligent Robotics <i>Aug.2023 - Aug.2025</i> GPA : 4.5 / 4.5 <i>Thesis: Motion Planning-Augmented Reinforcement Learning for Long-Horizon Visual Robot Manipulation in Home Assistance</i> (Expected graduation : <i>Aug.2025</i> )	
	<b>Sungkyunkwan University, South Korea</b> Bachelor of Science in Mechanical Engineering <i>Mar.2017 - Aug.2023</i> GPA : 4.28 / 4.5 ( <b><u>Summa Cum Laude</u></b> )	
RESEARCH EXPERIENCE	<b>Graduate Research Assistant</b> <i>Jan.2024 - Aug.2025</i> Helper lab, Sungkyunkwan University, Suwon, South Korea <ul style="list-style-type: none"><li>• Transitional research of exoskeleton robot for gait rehabilitation based on AI for hemiplegia patients<ul style="list-style-type: none"><li>– This study was supported by the Translational Research Program for Rehabilitation Robots (NRCTR-EX23002), National Rehabilitation Center, Ministry of Health and Welfare, Korea.</li><li>– Developing an AI-based ground-walking exoskeleton robot for rehabilitation of post-stroke hemiplegic patients who have the motor disorder at lower limb.</li><li>– Participation in analyzing joint-level gait trajectories and clustering their patterns based on deep learning.</li></ul></li></ul>	
	<b>Undergraduate Research Assistant</b> <i>Mar.2023 - Dec.2023</i> Helper lab, Sungkyunkwan University, Suwon, South Korea <ul style="list-style-type: none"><li>• Transitional research of exoskeleton robot for gait rehabilitation based on AI for hemiplegia patients<ul style="list-style-type: none"><li>– This study was supported by the Translational Research Program for Rehabilitation Robots (NRCTR-EX23002), National Rehabilitation Center, Ministry of Health and Welfare, Korea.</li><li>– Developing an AI-based ground-walking exoskeleton robot for rehabilitation of post-stroke hemiplegic patients who have the motor disorder at lower limb.</li><li>– Participation in analyzing joint-level gait trajectories and clustering their patterns based on deep learning.</li></ul></li></ul>	

## PUBLICATIONS

### Journals

1. **Gyeongmin Kim**, Hyungtai Kim, Yun-Hee Kim, Seung-Jong Kim, and Mun-Taek Choi, "Deep Temporal Clustering of Pathological Gait Patterns in Post-Stroke Patients Using Joint Angle Trajectories: A Cross-Sectional Study", *Bioengineering* 2025, 12(1), 55.

### Preprint

1. **Gyeongmin Kim**, Taehyeon Kim, Shyam Sundar Kannan, Vishnunandan L. N. Venkatesh, Donghan Kim, and Byung-Cheol Min, "DynaCon: Dynamic Robot Planner with Contextual Awareness via LLMs.", *arXiv preprint arXiv:2309.16031*, 2023.

### Online Repositories

1. Rotary Pendulum with PPO and Domain Randomization (2024)
  - *Site* : [https://github.com/gmkim97/rotary\\_pendulum\\_ppo.git](https://github.com/gmkim97/rotary_pendulum_ppo.git)
  - *Description* : This repository is to control rotary pendulum (Furuta pendulum) using PPO from Stable-baselines3 and Domain Randomization which randomizes the physical properties of the pendulum.
2. DynaCon (2023)
  - *Site* : <https://github.com/gmkim97/DynaCon.git>
  - *Description* : The DynaCon is for providing mobile robots with contextual awareness and dynamic adaptability during navigation without pre-existing maps using ChatGPT from OpenAI and ROS.
3. ArUco marker detection (2022)
  - *Site* : [https://github.com/gmkim97/ArUco\\_marker\\_detection.git](https://github.com/gmkim97/ArUco_marker_detection.git)
  - *Description* : This package is to detect one or more ArUco markers using Intel Realsense camera and broadcast each recognized marker into TFs.
4. Object Tracker (2022)
  - *Site* : [https://github.com/gmkim97/object\\_tracker.git](https://github.com/gmkim97/object_tracker.git)
  - *Description* : This package enables to recognize objects, publish TF topic, and display distances for each recognized object using Intel Realsense depth camera.

## CONFERENCES

1. Teh-Hao Teng, **Gyeongmin Kim**, Hyungtai Kim, and Mun-Taek Choi, "Deep Temporal Clustering for Long-Term Gait Recovery Patterns of Post-Stroke Patients using Joint Kinematic Data", *2025 11th International Conference on Computing and Artificial Intelligence (ICCAI 2025)*, Mar. 2025.
2. **Gyeongmin Kim**, Hyungtai Kim, and Mun-Taek Choi, "Gait Pattern Clustering in Post-Stroke Patients via Deep Learning Using Time-Series Joint-Level Angular Trajectory Data", *2024 6th International Conference on BioMedical Technology (ICBMT 2024)*, Feb. 2024. **[Best Oral Presentation Award]**

## TEACHING EXPERIENCE

### Teaching Assistant

Sungkyunkwan University, Suwon, South Korea

Aug.2023 - Aug.2025

- Fundamental Mathematics in Engineering1 (ERC2010-45), Spring Semester, 2025.
- Fundamental Mathematics in Engineering2 (ERC2011-43), Fall Semester, 2024.

	<ul style="list-style-type: none"> <li>• Fundamental Mathematics in Engineering1 (ERC2010-44), Spring Semester, 2024.</li> <li>• Fundamental Mathematics in Engineering2 (ERC2011-44), Fall Semester, 2023.</li> </ul>	
ACTIVITIES	<p><b>Capstone Design Contest</b> Sungkyunkwan University, Suwon, South Korea</p> <p><i>Aug.2022 - Dec.2022</i></p> <ul style="list-style-type: none"> <li>• Design of autonomous vision-based navigation using monocular camera, Jetson Nano, and toy car</li> <li>• Participation in hardware design and partially in post-processing of visual data</li> </ul> <p><b>AI-ICT Creative Idea Contest</b> Sungkyunkwan University, Suwon, South Korea</p> <p><i>Mar.2022 - Dec.2022</i></p> <ul style="list-style-type: none"> <li>• Design and production of mobile robot for last-mile delivery which can detect nearby pedestrians</li> <li>• Participation in object recognition, tracking, partially in hardware design and assembly</li> <li>• In conjunction with Engineering Research Project courses</li> </ul>	
HONORS AND AWARDS	<p><b>Best Oral Presentation Award</b> 2024 6th International Conference on BioMedical Technology (ICBMT 2024) Helper lab, Sungkyunkwan University, Suwon, South Korea</p> <p><i>Feb.2024</i></p> <p><b>Graduate Student Scholarship (Full)</b> Sungkyunkwan University, Suwon, South Korea</p> <p><i>Aug.2023 - Aug.2025</i></p> <p><b>Summa Cum Laude</b> Sungkyunkwan University, Suwon, South Korea</p> <p><i>Aug.2023</i></p> <p><b>1st Place Award of Capstone Design Contest</b> Sungkyunkwan University, Suwon, South Korea</p> <p><i>Dec.2022</i></p> <p><b>3rd Place Award of AI-ICT Creative Idea Contest</b> Sungkyunkwan University, Suwon, South Korea</p> <p><i>Dec.2022</i></p> <p><b>Academic Excellence Scholarship</b> Awarded to the undergraduate student for outstanding GPA Sungkyunkwan University, Suwon, South Korea</p> <p><i>Mar.2018 - Aug.2023</i></p> <ul style="list-style-type: none"> <li>• Spring Semester, 2023 (Partial scholarship)</li> <li>• Fall Semester, 2022 (Partial scholarship)</li> <li>• Fall Semester, 2021 (Partial scholarship)</li> <li>• Spring Semester, 2018 (Full scholarship)</li> </ul>	
SKILLS	<p>Coding : Python, MATLAB, C/C++ Libraries : Pytorch, Tensorflow, ROS1/2, Isaac Sim/Lab Modelings : Autodesk Inventor, ANSYS Fluent Operating Systems : Linux, Windows, MacOS Languages : Korean, English, Japanese</p>	