

Minjun Chang



QR 1. Website

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Research Interest | *Robotics, Locomotion, Motion Planning, Autonomous Driving, RL, Connectivity*

Education

- Georgia Institute of Technology**, Atlanta, GA, United States of America Incoming Aug 2025 ~
- Ph.D. Civil Engineering, *Robotics and Intelligent Construction Automation Laboratory*
- Yonsei University**, Seoul, Republic of Korea Mar 2019 – Feb 2025
- B.S. Mechanical Engineering

Research Experiences

- Dynamic Robotic System Laboratory**, Seoul National University Jul 2024 – Dec 2024
Undergraduate Intern. Supervisor: Prof. Jaeheung Park
- Developing a reinforcement learning framework with simultaneous state estimator training for locomotion
- Machine Learning and Control System Laboratory**, Yonsei University Jul 2022 – Jan 2023
Undergraduate Intern. Supervisor: Prof. Jongeun Choi
- Developed an enhanced localization algorithm with control input delay compensation
- Mechanobiology and Soft Materials Laboratory**, Yonsei University Jul 2020 – Jun 2021
Undergraduate Intern. Supervisor: Prof. Hyungseok Lee
- Developed Handheld Standing Surface Acoustic Wave (SSAW) Cell Alignment Device in bridged hold

Publications and Conferences

- Minjun Chang**, J.Y. Shin, Jaehung Park[†], “Robust Symmetric Bipedal Locomotion Development via Simultaneous State Estimator Neural Network Training”, *The 20th Korea Robotics Society Annual Conference (KRoC 2025, Feb. 12-14, 2025, Poster Presentation)* [1st author]
- H.W. Nam^{*}, S.Y. Choi^{*}, **Minjun Chang**^{*}, J.H. Yang^{*}, J.H. Lim, Jongeun Choi[†], “State prediction-based control input delay compensation for autonomous driving systems”, *The 18th Korea Robotics Society Annual Conference (KRoC 2023, Feb. 15-18, 2023)* ^{*}equal contribution [1st author]
 - Oral presentation in a special session, “Autonomous Driving Robot Racing Technics”

Work Experiences

- Hanwha Systems (Space&Defense)** Jan 2025 – Present
- ARM7 MCU Software programming for Small Synthetic Aperture Radar (SAR) Satellite
- GOLE Robotics (Robotics Engineer, Path Planning & SLAM)** Apr 2024 – Jun 2024
- Implemented A* for global path planning and sMPC for local path planning on ROS2 and robot (WeRo)
 - Developed actuator controller package with C++/Python binding
- DRIMAES (Embedded Software Engineer, Research Engineer)** Oct 2022 – Mar 2024
- Linux, ARM MCU software/firmware programming
 - Developed various communication protocols (Serial, MQTT, REST, CAN)
 - Implemented multiple virtual container management technique on cross-platform systems
- ToysMyth (Embedded Software Engineer, Research Engineer)** Feb 2022 – Oct 2022
- Developed embedded software for Mediatek, ESP chipsets and enhanced custom OpenWRT OS kernel
- Alsemy (AI Lab Intern, Intern)** Jun 2021 – Aug 2021
- Implemented prediction data smoothness verification metric

Selected Honors and Awards

- Next Generation Engineer**, *Institute for Promotion of Engineering and Science of Korea (IPESK)* Nov 2024
- Selected as a **Next Generation Engineer** by IPESK funded by Korea Institute for Advanced Studies.
- 1st place, National ICT Smart Device Competition**, *Ministry of Science and ICT, Republic of Korea* Aug 2024
- Award by *the Minister of Science and ICT of Republic of Korea*
 - Led a team of 5 in developing an *Autonomous Manufacture Assistant CARTRASCHE*
 - Designed a mobile robot with rotating shelf system using SLAM for navigation in ROS
 - Implemented custom RC filter and encoder-less motor control algorithm for activation
 - Operated based on: Linux OS, ROS1, Python and C++ [[News](#), [Project Page](#), [Video](#)]
- 1st place, 2022 Autonomous Driving Robot Racing Contest**, *Korean Robotics Society (KRoS)* Nov 2022
- Developed a control algorithm with ROS, utilizing LiDAR, IMU, and GPS for collision avoidance
 - Implemented sensor fusion algorithm on ROS platform for localization
 - Operated based on: Linux OS, ROS1, ROS2, Python and C/C++ [[News](#), [Contest Video](#)]
- Selection, Hanium Contest**, *Federation of Korea Information Industries* Nov 2021
- Led a team of 4 in developing *Personalized Content Literacy program EYE-TUNER*
 - Implemented pupil tracking algorithm for the program [[Project Page](#)]
- 2nd place, Medical Hack 2021**, *Busan City* Nov 2021
- Implemented posture prediction algorithm with multiple load-cell sensors
- 2nd place, Yonsei IHEI Workstation**, *Yonsei University* Jul 2020
- Designed an autonomous urine analysis apparatus and its actuator system [[Video](#)]

Selected Projects

- Development of Fleet Management System for multi-robot cluster**, *Hyundai Robotics* Aug 2023 – Dec 2023
- Implemented task scheduling and allocation algorithm based on order status for multi-robot network
 - Operated based on: Linux OS, Python, Custom MQTT Protocol on Hyundai Robotics serving robots
- CARTRASCHE: Autonomous Driving Auxiliary Cart Robot**, *Capstone Project* Mar 2024 – Jul 2024
- Developed autonomous driving cart robot with tri-shelf rotation feature
 - Managed the project flow, designed circuits and developed motor controller
- FennecBot: Industrial Anomaly Detection Mobile Robot**, *SM Instruments* Mar 2023 – Aug 2023
- Developed multi-modal [deep learning network](#) for pipeline anomaly detection and the classification of pipeline leakage using RGB camera, and ultrasonic/acoustic sound camera
 - Operated on Scout mini with line-tracing algorithm detecting pipe leakage within Hyundai HI. factory
- SAJOGI: Boston Dynamics Spot Micro project**, *RoboIn* May 2022 – Nov 2022
- Built a small scaled quadrupedal robot based on *Boston Dynamics SPOT* morphology [[github](#)]

Extracurricular Activities and Leadership

- YAI, Artificial Intelligence Club**, *Yonsei University* Mar 2022 – Present
- Studied open courses and papers about robot learning and wrote [review articles](#)
- RoboIn, Robotics Club**, *Yonsei University* May 2020 – Present
- President (2021-2022), Vice President (2021), Executive Staff (2020 - 2023)
 - Robot Projects: quadruped robot (based on SPOT of Boston Dynamics), quadrotor drone, hexapod
 - Conducted Seminars: [basics of CNN](#), [basics of reinforcement learning](#), serial communication

Patents and Copyrights

Autonomous Driving Auxillary Cart Robot for Manufacture (KR10-2024-0177135, under prosecution)	Aug 2024
The Urine Examination Apparatus and Controlling Method of the Same (KR10-2020-0176792, under prosecution)	Dec 2020
Eye Tuner: Media Literacy Program based on Pupil Tracking by Computer Vision (Korea Copyright Commission, C-2024-039138, Registered)	Nov 2021

Skills Summary

Programming Languages: Python, C, C++, Javascript, MATLAB
Frameworks/Tools: ROS, Docker, MPLab, PyTorch, FastAPI, IsaacGym, AWS, Solidworks, CREO, ANSYS
Hardware: ARM V7, Jetson Xavier, Jetson Nano, RaspberryPi, Arduino, STM32, ESP32, Bolt10, Scout Mini, ERP42
Languages: Korean (Native), English (Fluent, iBT TOEFL 109)