Dahyun Nam

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Department of Mechanical Engineering, Seoul National University, Seoul, South Korea

EDUCATION

• Seoul National University *Mar 2024 - Feb 2026 (Expected)*
Master of Science in Mechanical Enginnering GPA: 4.21/4.5

• Yonsei University *Mar 2020 - Feb 2024*
Bachelor of Science in Mechanical Enginnering GPA: 3.41/4.5

RESEARCH EXPERIENCE

• Biorobotics Laboratory - Seoul National University *Sep 2023 - Present*
Undergraduate, Graduate Researcher (PI : Prof. Kyujin Cho) Seoul, South Korea
◦ IMU-based robotic hip exoskeleton control system with human-in-the-loop optimization.
◦ Simulation and LQR-based controller for quasi-direct drive jumping-driving robot.

• Soft Computing Lab - Yonsei University *Mar 2023 - Aug 2023*
Undergraduate Researcher (PI : Prof. Sung-Bae Cho, Prof. Seok-Jun Buu) Seoul, South Korea
◦ Autonomous anomaly detection robot in manufacturing using multimodal DNN.
◦ In-vehicle noise classification by ProtoNet-based few-shot learning and dynamic memory replay.

• Center for Healthcare Robotics - Korea Institude of Science and Technology (KIST) *Dec 2022 - Feb 2022*
Research Intern at Medical Navigation Lab (PI: Prof. Deukhee Lee) Seoul, South Korea
◦ Vision-based complete blood count algorithm using image processing and deep learning.
◦ Biological value estimation using optical microscope ray simulation and blood cell modeling.

• Manufacturing and Mechatronics Lab - Yonsei University *Sep 2022 - Mar 2023*
Undergraduate Intern (PI: Prof. Byung-Kwon Min) Seoul, South Korea
◦ Feedback control system of hardware-twin robot arm by two-way remote communication.

WORK EXPERIENCE

• Hyundai Motors Group, Headquarters *Jul 2022 - Oct 2022*
Intern, S Innovation Progress Team, Robotics Division Seoul, South Korea
◦ Robotics system software architecture development and patent assetization in HMGICS.

PUBLICATIONS C=CONFERENCE, J=JOURNAL, T=THESIS

[J.4] Seung-Hyun An, Sang-Min Baek, Dahyun Nam et al. (2025).**A Small-Scale Wheeled Robot Capable of Continuous Quasi-Direct-Drive Jumping**. *(In preparation)* *2nd Author

[J.3] Jinhee Lee, Dahyun Nam et al. (2025). **Vision-Ultrasound Robotic System based on Deep Learning for Gas and Arc Hazard Detection in Manufacturing**. *Expert Systems With Applications (Under Review)* *Co-1st author

[J.2] Dahyun Nam et al. (2024). **Design and Development of Unmanned Water Rescue Platform with Emergency Detection and Self-inflating Life Jacket Launching Mechanism**. *Trans. Korean Soc. Mech. Eng. C* *1st Author

[J.1] Robin Inho Kee, Dahyun Nam et al. (2024). **Disentangled Prototyping with Triplet-trained Prototypical Network for Few-shot Learning in In-vehicle Noise Classification**. *IEEE Access* *2nd Author

[C.2] Jegyeong Ryu, Dahyun Nam et al. (2023). **Corpuscular Volume Estimation Using a Small Amount of Blood via Microscope Images**. *23rd International Conference on Control, Automation and Systems (ICCAS)* *2nd Author

[C.1] Dahyun Nam et al. (2023). **Dynamic Prototype-guided Memory Replay for In-Vehicle Noise Classification**. In *Conference of Korea Data Mining Society (KDMS)* *1st Author

HONORS AND AWARDS

- **Excellent Teaching Assistant Award** *Mar 2025*
  College of Engineering, Seoul National University
- **The 13th KSME Student Creative Design Competition Excellent Project Award** *Sep 2023*
  The Korean Society of Mechanical Engineers (KSME)
- **SAS Student Paper Award** *Jun 2023*
  Conference of Korea Data Mining Society (KDMS)
- **Seoul Software Academy (SeSAC) Excellent Project Award** *Jun 2023*
  Seoul Business Agency
- **Creative Design Competition Grand Prize** *Jun 2023*
  Yonsei University College of Engineering

EXTRACURRICULAR ACTIVITIES

- **ETH Zurich 2025 Robotics Summer School in Epeisses, Switzerland.** *Jun 2025*
  Participated in the grant of ETH Robot X initiative fellowship
  ◦ Training on autonomous robot (state estimation, SLAM, planning, and object detection) and participated in search-and-rescue challenge.
- **Roboin, Robotics Club, Yonsei University** *Jun 2021 - Jan 2024*
  Executive Staff (2021-2024), Vice President (2022), President (2023-2024)
  ◦ Unmanned water rescue robot, autonomous quadruped robot and Turtlebot3 self-driving project.
  ◦ Led robotics seminars(ROS, Embedded system, 3D printing) and cirriculums.
- **Yonsei Drone, UAV Club, Yonsei University** *May 2021 - Dec 2022*
  Executive Staff (2021-2022), Vice President (2021-2022), Advisory Committee (2022)
  ◦ Arduino based quadcopter position control and autonomous face-tracking project.
- **Undergraduate Internship, BAE, KIM & LEE LLC.** *Jul 2021*
  2021 Internship Program for Undergraduates, Labor & Employment team
- **Student Council of the College of Engineering, Yonsei University** *May 2021 - Dec 2021*
  Member of Communications Bureau and Freshman president of mechanical engineering

TEACHING EXPERIENCE

- **Teaching Assistant - Creative Design Engineering [400.018]** *2024 Fall semester, 2025 Fall semester*
  Seoul National University, Dept. of Mechanical Engineering, Undergraduate Course [▶]
  ◦ Course materials (reference robot and its control algorithm) and technical TA sessions.
- **Vex Robotics Instructor - Beyond Coding** *Jul 2024 - Nov 2024*
- **Arduino Instructor - Yonsei Residential College** *May 2023*
- **Korean Literature Instructor - Insight Education Inc.** *May 2020 - May 2021*
- **Science Instructor - SUN Science Inc.** *Nov 2019 - May 2021*

SKILLS

- **Programming Languages:** C, C++, Python, Arduino, ROS
- **Mathematical & Simulation Tools:** MATLAB, Simulink, FEMM, Ansys Mechanical, TracePro, Isaac Sim
- **Design Tools:** Creo, Solidworks, AutoCAD, Fusion360, Onshape, Autodesk Inventor

CERTIFICATIONS

- **Northwestern University:** Modern Robotics, Foundations of Robot Motion Course Certification *Dec 2023*
- **IBM:** Deep Learning and Reinforcement Learning Course Certification *Nov 2023*
- **IBM:** Exploratory Data Analysis for Machine Learning Course Certification *Nov 2023*
- **Seoul National University, Dynamic Robot Systems Lab:** Robotics Boot Camp Certification *Jun 2022*
- **Yonsei University:** AI and Machine Learning Engineer Training Course Certification *Dec 2021*
- **Korea Transportation Safety Authority:** Qualification for Unmanned Multicopter Pilot 4th Class *Dec 2021*

LANGUAGES

- Korean : Native
- English : Fluent (Khan Academy translator(2014-2015), TOEFL iBT: 107, GRE General Test: 312)