JUNGHWAN RO

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Project Mobility Student
Environmental Robotics Laboratory
ETH Zurich

EDUCATION

Thesis **ETH Zurich** *May. 2024 – Current*

Project: "Morphing multi-rotor drone through thrust vectoring control"
Supervisor: Prof. Stefano Mintchev, Environmental Robotics Lab

M.S. **Georgia Institute of Technology, Computer Science** *Aug. 2022 – Current*
GPA 4.00/4.00

Specialization: Computational Perception and Robotics
Thesis: "Deep Reinforcement Learning Framework for Autonomous Surface Vehicles in Environmental Cleanup"
Supervisor: Prof. Cedric Pradalier, Data-driven Robotics for Environment Assessment and Monitoring Lab
Vertically Integrated Project (VIP): Autobot (Advisor: Prof. Patricio Vela)

MCIT **University of Pennsylvania, Computer and Information Technology** *Aug. 2022 – Current*
GPA 4.00/4.00

M.E. **The University of Tokyo, Mechanical Engineering** *Apr. 2016 – Mar. 2018*
GPA 3.73/4.00

Thesis: "Reactivity Evaluation of Weak-Combustibility Fluids in Micro-Flow Reactor with Streamwise Temperature Gradient"
Supervisor: Prof. Yuji Suzuki, Micro Energy System Lab

B.E. **Okayama University, Mechanical & Systems Engineering** *Apr. 2012 – Mar. 2016*
GPA 3.53/4.00, Graduation with Honors (Kokusyo Award)

Thesis: "A Study on the Control of Resolidified Layer Thickness in Large-Area EB Irradiation Method"
Supervisor: Prof. Akira Okada, Nontraditional Machining Lab

PROFESSIONAL EXPERIENCE

Department of Mechanical Engineering, ROK Naval Academy **Changwon, Korea**
Assistant Professor *Oct. 2022 – Dec. 2022*
Lecturer *Apr. 2021 – Sep. 2022*

Prepared and conducted lectures on mechanical engineering (Robotics, Fluid Mechanics, Introduction to Mechanical Engineering, Statics) for undergraduates, consistently receiving top 5% evaluations
Participated in the planning, development, and evaluation of the division's curriculum
Concurrently served as an academic advisor (Mentor) of foreign exchange students from the United States, Japan, and the Republic of Turkey

3rd Fleet Headquarters, ROK Navy **Mokpo, Korea**
Interpretation Officer *Aug. 2020 – Apr. 2021*

Provided various interpretations for high-level receptions such as the U.S. Pacific Fleet Commander
Prepared the Bell-Buoy Exercise, a multinational (12 nations) naval exercise to protect maritime trade

DDH-979, ROK Navy **Jeju, Korea**
Engineering Officer *Dec. 2019 – Aug. 2020*

Electric branch head of DDH-979, main ship of ROK Navy; led a team of engineering NCO/soldiers

Special Warfare Flotilla, ROK Navy **Changwon, Korea**
UDT/SEAL Trainee, Withdrew due to injury *Feb. 2019 – Sep. 2019*

JLK Inspection **Seoul, Korea**
Research Engineer *Apr. 2018 – Aug. 2018*

Developed an AI-based neurological disorder analysis solution that diagnoses dementia with an input of MRI images by building an algorithm and predicting blood flow inside the brain

HONORS & AWARDS

Mayor's Award *Dec. 2022*
Changwon City, recognized for contributions to defense-industry collaboration

Joint Cruise Training Task Group Commander's Commendation *Nov. 2021*
Dedication to the education and training of cadets

Chairman of the Joint Chiefs of Staff Award *Dec. 2019*
Excellence in the Naval Officer Training, Officer Candidate School

Naval Education and Training Command Award *Mar. 2019*
1st/1404 in the Training; 1st 1,000/1,000 perfect score in Naval Education and Training Command History

The Global Leader Program for Social Design and Management *Oct. 2016 – Mar. 2018*
Fully funded interdisciplinary doctoral fellowship, including six months of abroad study funding
Passed the Ph.D. qualification; left due to call of duty

Kokusyo Award *Mar. 2016*
Received an award conferred to "excellent undergraduate students, both for academic achievements and integrity upon recommendation by each dean" highest graduate honor for a graduate

Korea-Japan Joint Government Scholarship Program *Apr. 2012 – Mar. 2016*
Fully funded joint government scholarship covering all study abroad costs; awarded to 100 students a year

PUBLICATIONS & PRESENTATIONS

[1] L. Batista*, **J. Ro*,** A. Richard, P. Schroepfer, S. Hutchinson, C. Pradalier, "A Deep Reinforcement Learning Framework and Methodology for Energy-Efficient ASV Navigation," ***Accepted to IROS 2024, to be published.*** ***Equal Contribution**

[2] **J. Ro,** C. W. Hong, "Technology Trends of Virtual Augmented Reality and Application to Military Education and Training," *The Journal of Korean Institute of Information Technology*, August 2022, 151-164.

[3] **J. Ro,** Y. Fan, K. Morimoto, Y. Suzuki, "Reactivity Evaluation of Weak-Combustibility Fluids in Micro-Flow Reactor with Streamwise Temperature Gradient," in *The Ninth JSME-KSME Thermal and Fluids Engineering Conference (TFEC 2017)*, October 27-30, 2017, Okinawa, Japan, 6pp., Paper No. 1603

[4] **J. Ro**, T. Shinonaga, and A. Okada, "A Study on the Control of Resolidified Layer Thickness in Large-area EB Irradiation Method," in *The Proceedings of Conference of Chugoku-Shikoku Branch*, February 9, 2016, Shikoku, Japan, Paper No. 407. (In Japanese)

ADDITIONAL EXPERIENCES

ETH Robotics Summer School **Geneva, Switzerland**
Participant, Team7(TechTitans) Leader *Jul. 2024*

Research and Business Development Foundation, ROK Naval Academy **Jinhae, Korea**
Research Administrator *Jul. 2021 – Jul. 2022*

Korean Student Association, The University of Tokyo **Tokyo, Japan**
45th President leading 465 Korean international students *Apr. 2017 – Mar. 2018*

MIT - UTokyo Summer Camp for Asuno (Future) Technology **Tokyo, Japan & MA, US**
Participant *June 2017, Feb. 2018*