

Myeongseok Ryu

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Myeongseok Ryu is under Ph.D. course. (compiled on December 6, 2025)

RESEARCH INTERESTS

Control Theory

Adaptive Control, Optimal Control

Neural Network-based Control

Neuro-Adaptive Control, Reinforcement Learning

Contraction Theory

Online Optimization

PROFILE & LOGOS



EDUCATION

Korea Advanced Institute of Science and Technology (KAIST), Korea

September 2025 – Present

CCS Graduate School of Mobility

Ph.D. of Science in Mobility Engineering

- Supervisor: Prof. Kyunghwan Choi, KAIST

Gwangju Institute of Science and Technology (GIST), Korea, (Withdrew for further studies)

March 2025 – May 2025

School of Mechanical Engineering

Ph.D. of Science in Mechanical Engineering

Gwangju Institute of Science and Technology (GIST), Korea

March 2023 – February 2025

School of Mechanical Engineering

Master of Science in Mechanical Engineering

- Thesis: Constrained Optimization-Based Neuro-Adaptive Control (CoNAC) for Euler-Lagrange Systems
- Supervisor: Prof. Kyunghwan Choi, GIST

Incheon National University (INU), Korea

March 2017 – February 2023

Department of Mechanical Engineering

Bachelor of Engineering

PROFESSIONAL EXPERIENCE

Korea Advanced Institute of Science and Technology (KAIST), Korea

May 2025 – August 2025

Part time Contract Research Scientist

– Research on Neural Network-based Control for Mobility Systems

SKILLS

Languages: Korean, English

Programming: Matlab/Simulink, Python, C/C++

Implementation: **Simulation** CarMaker, ROS

Others Git, LaTeX, Jekyll

PUBLICATIONS

Papers Under Review

3. Vector-Space Optimization for Contraction Theory-Based Control Design: An Energy-Based Effective Space Approach
Myeongseok Ryu, Kyunghwan Choi, Sesun You*
International Federation of Automatic Control (IFAC), 2026
2. All-Wheel Steering Vehicle Control Based on Contraction Theory with Neural Network
Myeongseok Ryu, Kyunghwan Choi*
IEEE International Conference on Advanced Motion Control (AMC), 2026
1. Constrained Optimization-Based Neuro-Adaptive Control (CONAC) for Euler-Lagrange Systems Under Weight and Input Constraints
Myeongseok Ryu, Donghwa Hong, Kyunghwan Choi*
IEEE Transactions on Systems, Man, and Cybernetics, 2025

International Conference Papers

4. Physics-Informed Online Learning of Flux Linkage Model for Synchronous Machine
Seunghun Jang, Myeongseok Ryu, Kyunghwan Choi*
Annual Conference of the IEEE Industrial Electronics Society (IECON), 2025

3. Constrained Optimization-Based Neuro-Adaptive Control (CONAC) for Synchronous Machine Drives Under Voltage Constraints
Myeongseok Ryu, Niklas Monzen, Pascal Seitter, Kyunghwan Choi, Christoph M. Hackl*
Annual Conference of the IEEE Industrial Electronics Society (IECON), pp. 1-7, 2025

2. Imposing a Weight Norm Constraint for Neuro-Adaptive Control
Myeongseok Ryu, Jiyun Kim, Kyunghwan Choi*
European Control Conference (ECC), pp. 380-385, 2025

1. A Comparative Study of Reinforcement Learning and Analytical Methods for Optimal Control
Myeongseok Ryu, Junseo Ha, Minji Kim, Kyunghwan Choi*
International Workshop on Intelligent Systems (IWIS), pp. 1-5, 2023

Domestic Conference Papers

3. Approximation-based Steering Controller with Deep Neural Network
Myeongseok Ryu, Kyunghwan Choi*
제어로봇시스템학회 (ICROS), pp. 884-885, 2024

2. Integrated Motion Control of Four in-Wheel Motor Actuated Vehicles Considering Path Tracking, Ride Comfort, and Energy Efficiency
Myeongseok Ryu, Kyunghwan Choi*
한국자동차공학회 추계학술대회 (KSAE), pp. 490, 2023

1. Data-driven Modeling of Model Residuals for Linear Model Predictive Control of Nonlinear Systems
Myeongseok Ryu, Kyunghwan Choi*
제어로봇시스템학회 (ICROS), pp. 837-838, 2023

Preprint Papers

1. CNN-based End-to-End Adaptive Controller with Stability Guarantees
Myeongseok Ryu, Kyunghwan Choi*
Arxiv, 2024

GRANTS AND AWARDS

IEEE International Workshop on Intelligent Systems (IWIS)	July 2025
Best Presentation Paper Award	
European Control Association (EUCA)	June 2025
Student Support	400 EUR
Graduate International Research Experience Fellowship (GIST-IREF)	October 2024
Research Support	16 million KRW (approx. 12,000 USD)
Institute of Control, Robotics and Systems (ICROS)	June 2023
Best Paper Award	
INU MATLAB Cody Challenge	June 2021
Top Prize	