

Yongseok Kwon

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EDUCATION

University of Michigan

M.S.E in Mechanical Engineering, GPA: 4.0/4.0

Ann Arbor, MI

Aug. 2020 – Aug. 2022

Ulsan National Institute of Science and Technology (UNIST)

B.S. in Mechanical Engineering, Human Factors Engineering, GPA: 3.94/4.3

Ulsan, Republic of Korea

Mar. 2016 – Feb. 2020

- Honors: *Summa Cum Laude*

University of California

Exchange Student in Mechanical and Aerospace Engineering, GPA: 4.0/4.0

Irvine, CA

Jun. 2018 – Aug. 2018

RESEARCH EXPERIENCE

ROAHM Lab, University of Michigan

Jul. 2021 – Jan. 2023

Research Engineer

Advisor: Prof. Ram Vasudevan

- Developed a python framework for a parallelizable reachable set computation via polynomial zonotope
- Trained a model for a sign distance function of trajectory parameterized reachable sets for articulated robots

Locomotor Control Systems Lab, University of Michigan

Jan. 2021 – May 2021

Graduate Student Researcher

Advisor: Prof. Robert D. Gregg IV

- Tested the extended Kalman filter-based gait state estimator on the open-source robotic leg
 - Built measurement models of gait analysis with basis function and neural network
 - Incorporated task variables on the gait state variable

Bio-Robotics and Control (BiRC) Lab, UNIST

Mar. 2019 – Jul. 2019

Undergraduate Research Intern

Advisor: Prof. Joonbum Bae

- Designed a decoupling mechanism for tendon-driven multi-link robots
 - Reduced complexity of mechanism with wider adaptability to tendons
- Managed components of hydraulic robot arm
 - Manipulated electric circuit, assembled link and hydraulic actuator, and examined encoder

COURSE PROJECTS

Transformers for Motion Planner, University of Michigan

Aug. 2021 – Dec. 2021

Course: Intro. to Robotic Manipulation

Advisor: Prof. Nima Fazeli

- Applied decision transformer and trajectory transformer on multi-link arm reaching task

Model Predictive Control for Autonomous Racing, University of Michigan

Aug. 2021 – Dec. 2021

Course: Self Driving Car

Advisor: Prof. Ram Vasudevan

- Implemented model predictive control with convexified obstacle constraints for car racing

Probabilistic Random Forest, University of Michigan

Aug. 2020 – Dec. 2020

Course: Machine Learning

Advisor: Prof. Clayton Scott

- Implemented probabilistic random forest on data with non-Gaussian noise

Pointwise Global Convergence of Path Smoothing, UNIST

Mar. 2019 – Jun. 2019

Course: UAV Flight Control & Simulation

Advisor: Prof. Hyondong Oh

- Formulated the RRT path smoothing algorithm with better convergence to shortcut

SKILLS

Programming

Python, MATLAB

Software

IPOPT, Gurobi, MuJoCo, Pybullet

Frameworks & Others

Pytorch, Stable-Baselines3, Weights & Biases, Linux, Conda, Git, Mathematica

HONORS & AWARDS

National Science and Engineering Scholarship, Korea Student Aid Foundation (KOSAF)

2018 – 2019

- Full-tuition scholarship for the last two years of undergraduate studies

Overseas Studies Scholarship, UNIST

2018

- Received \$4,200 as a financial support for a summer session at UC Irvine

Academic Performance Scholarship, UNIST

2016 – 2017

- Full-tuition scholarship for the first two years of undergraduate studies