YOUNGJAE MIN

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INTERESTS Designing and analyzing autonomous systems, machine learning, optimization, control

EDUCATION

Massachusetts Institute of Technology — Cambridge, MA
Master's Student at Laboratory for Information and Decision Systems (LIDS) — From Sep. 2021
Advisor: Professor Navid Azizan

Korea Advanced Institute of Science and Technology — Daejeon, Korea
B.S. in Electrical Engineering and Mathematical Sciences — Mar. 2014 - Feb. 2020*
(*summa cum laude*) — (*inlcude two years of military service)

RESEARCH EXPERIENCE

Updatable Machine Learning, Estimation | PI: Prof. Navid Azizan — Sep. 2021 - present
Laboratory for Information and Decision Systems, MIT
- Developed algorithm to learn entire dataset while visiting each datapoint only one time [C1]

Perception, Planning, Inference | PI: Prof. Han-Lim Choi — Feb. 2019 - July 2021
Laboratory for Information and Control Systems, Dept. of Aerospace Eng., KAIST
- Devised real-time 3-D dynamic occupancy mapping algorithm from LiDAR data [C2]
- Devised informative path planning algorithm of mobile sensor networks in GPS-denied area [C3]
- Devised online learning and planning algorithm of partially observable dynamical systems [J1]
- Devised non-myopic path planning algorithm of mobile sensors for multi-target tracking [J2]

Provable Neural Network Classifier | PI: Prof. Hye Won Chung — Mar. 2018 - Jan. 2019
Inference and Information for Data Science Lab, Sch. of Electrical Eng., KAIST
- Designed neural network classifiers that provably generalize to separable distributions [C4]

Vital Sign Monitoring System | PI: Prof. Fadel Adib — June 2018 - Sep. 2018
Signal Kinetics Group, Media Lab, MIT
- Built real-time blood flow measurement system using mmWave radar technology

Indoor Localization | PI: Prof. Sung-Ju Lee — June 2017 - Feb. 2018
Networking & Mobile Systems Lab, Sch. of Computing, KAIST
- Estimated indoor person location through channel information from commodity Wi-Fi devices

PUBLICATIONS

Conference Proceedings

1. **Y. Min**, K. Ahn, N. Azizan [arXiv: 2207.13853]
"One-Pass Learning via Bridging Orthogonal Gradient Descent and Recursive Least-Squares"
IEEE Conference on Decision and Control (CDC), Cancún, Mexico, Dec. 2022 (**Invited Session**)
2. **Y. Min**, D. Kim, H. Choi
"Kernel-Based 3-D Dynamic Occupancy Mapping with Particle Tracking"
IEEE International Conference on Robotics and Automation (ICRA), Xi'an, China, June 2021
3. **Y. Min**, S. Park, H. Choi [arXiv: 1909.11046]
"Informative Planning of Mobile Sensor Networks in GPS-Denied Environments"
AIAA Science and Technology Forum and Exposition (SciTech GN&C), Orlando, USA, Jan. 2020

4. **Y. Min** and H. W. Chung [arXiv: 1904.09109]
"Shallow Neural Network can Perfectly Classify an Object following Separable Probability Distribution," *IEEE International Symposium on Information Theory* (ISIT), Paris, France, July 2019

Journal Articles

1. S. Park, Y. Park, **Y. Min**, H. Choi [arXiv: 1903.08643]
"Online Gaussian Process State-Space Model: Learning and Planning for Partially Observable Dynamical Systems"
International Journal of Control, Automation and Systems 20 (2022): 601-617
2. S. Park*, **Y. Min***, J. Ha, D. Cho, H. Choi (*equally contributed) [arXiv: 1807.11068]
"A Distributed ADMM Approach to Non-Myopic Path Planning for Multi-Target Tracking"
IEEE Access 7 (2019): 163589-163603
3. **Y. Min**, G. Yun, K. Kim, Y. Roh, Y. H. Kim
"Comparison of slowness profiles of Lamb wave with elastic moduli and crystal structure in single crystalline silicon wafers"
Journal of the Korean Society for Nondestructive Testing 36 (2016): 1-8

Honors & Awards

2020 Global Leadership Award, *KAIST* — 2020

KAIST Presidential Fellowship, *KAIST* — 2014 - 2020

Dean's List, *College of Engineering, KAIST* — Fall'14, Spring'15, Spring'17, Spring'19

GE Foundation Scholar-Leaders Program, *Fulbright / GE Foundation* — 2015 - 2019

Undergraduate Student Scholarship, *Korea Foundation for Advanced Studies* — 2015 - 2019

Army Commendation Medal, *United States Department of the Army* — 2017

Professional Activities

Reviewer for International Conferences and Journals

- *Conferences* : Learning for Dynamics & Control (L4DC), IEEE Conference on Decision and Control (CDC), IEEE International Conference on Robotics and Automation (ICRA)

Teaching Experience

PH141 General Physics I, Tutor, *KAIST* — Spring'15, Spring'17

KAIST Global Institute for Talented Education, Online Tutor, *KAIST* — Aug. 2014 - July 2015

Extracurriculars

KAIST EE Newsletter, Reporter, *KAIST* — Mar. 2017 - Dec. 2017

ROK Army & U.S. Army, IT Specialist (Sergeant, KATUSA), *Cp. Carroll* — July 2015 - Apr. 2017

The Real LUNATIC, B-Boy, *KAIST* — Mar. 2014 - July 2015

Skills

Programming C/C++, Python, Pytorch, ROS, CUDA

Languages Korean (native), English (TOEFL iBT 108/120, GRE Verbal 159/170)