YOUNGJAE MIN (민영제)

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INTERESTS

Learning-Based Control, Autonomous Systems, Machine Learning, Optimization, Control Theory

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

Laboratory for Information and Decision Systems, MIT — Sep. 2021 - Present
Research Assistant | Advisor: Prof. Navid Azizan
- Learning control of unknown dynamical systems [P1]
- Online/continual learning without catastrophic forgetting [P2, C2]

Laboratory for Information and Control Systems, KAIST — Feb. 2019 - July 2021
Undergrad. Researcher | Advisor: Prof. Han-Lim Choi
- 3-D dynamic occupancy mapping [C1, C3]
- Path planning for mobile sensor networks [C4, J2]
- Online learning and planning for partially observable dynamical systems [J1]

Inference and Information for Data Science Lab, KAIST — Mar. 2018 - Jan. 2019
Undergrad. Researcher | Advisor: Prof. Hye Won Chung
- Representational capability of neural networks [C5]

Signal Kinetics Group, Media Lab, MIT — June 2018 - Sep. 2018
Visiting Researcher | Advisor: Prof. Fadel Adib
- Vital sign monitoring using mmWave radar

Networking & Mobile Systems Lab, KAIST — June 2017 - Feb. 2018
Undergrad. Researcher | Advisor: Prof. Sung-Ju Lee
- Indoor person localization using Wi-Fi signals

PUBLICATIONS

*(P: preprint, C: conference proceedings, J: journal articles, *equally contributed)*

[P1] "Data-Driven Control with Inherent Lyapunov Stability," *preprint*
Youngjae Min, Spencer M. Richards, Navid Azizan [arXiv: 2303.03157]

[P2] "SketchOGD: Memory-Efficient Continual Learning," *preprint*
Benjamin Wright, **Youngjae Min**, Jeremy Bernstein, Navid Azizan

[C1] "DS-K3DOM: 3-D Dynamic Occupancy Mapping with Kernel Inference and Dempster-Shafer Evidential Theory," Juyeop Han*, **Youngjae Min***, Hyeok-Joo Chae, Byeong-Min Jeong, Han-Lim Choi
ICRA 2023 - *IEEE International Conference on Robotics and Automation* [arXiv: 2209.07764]

[C2] "One-Pass Learning via Bridging Orthogonal Gradient Descent and Recursive Least-Squares"
Youngjae Min, Kwangjun Ahn, Navid Azizan
CDC 2022 (Invited Session) - *IEEE Conference on Decision and Control* [arXiv: 2207.13853]

[C3] "Kernel-Based 3-D Dynamic Occupancy Mapping with Particle Tracking"
Youngjae Min, Do-Un Kim, Han-Lim Choi
ICRA 2021 - *IEEE International Conference on Robotics and Automation*

[C4] "Informative Planning of Mobile Sensor Networks in GPS-Denied Environments"
Youngjae Min, Soon-Seo Park, Han-Lim Choi
SciTech 2020 - *AIAA Science and Technology Forum and Exposition* [arXiv: 1909.11046]

[C5] "Shallow Neural Network can Perfectly Classify an Object following Separable Probability Distribution"
Youngjae Min, Hye Won Chung
ISIT 2019 - *IEEE International Symposium on Information Theory* [arXiv: 1904.09109]

[J1] "Online Gaussian Process State-Space Model: Learning and Planning for Partially Observable Dynamical Systems," Soon-Seo Park, Young-Jin Park, **Youngjae Min**, Han-Lim Choi
IJCAS 2022 - *International Journal of Control, Automation and Systems* [arXiv: 1903.08643]

[J2] "A Distributed ADMM Approach to Non-Myopic Path Planning for Multi-Target Tracking"
Soon-Seo Park*, **Youngjae Min***, Jung-Su Ha, Doo-Hyun Cho, Han-Lim Choi
Access 2019 - *IEEE Access* [arXiv: 1807.11068]

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

KFAS 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

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

Teaching Experience

2.004 Dynamics and Control II, Teaching Assistant, *MIT* Fall'22

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)