

YOUNGJAE MIN (민영제)

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INTERESTS Reliable AI & Autonomy, Learning-Based Control, Continual Learning, Optimization

EDUCATION **Massachusetts Institute of Technology** From June 2023
Ph.D. Candidate in Aeronautics and Astronautics Advisor: Professor [Navid Azizan](#)
◦ Also in Interdisciplinary Doctoral Program in Statistics

Massachusetts Institute of Technology Sep. 2021 - May 2023
S.M. in Aeronautics and Astronautics

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

RESEARCH **Laboratory for Information and Decision Systems, MIT** From Sep. 2021
EXPERIENCE *Research Assistant / Advisor: Prof. Navid Azizan*

- Learning and control with provable input-output constraint satisfaction [P1, C6]
- Online/continual learning robust to catastrophic forgetting [P4, P3, C5, C8]

CI Mobility Research Team, Honda Research Institute, CA May 2025 - Aug. 2025
Research Intern / Advisor: Sangjae Bae

- Motion planning via integrated offline RL and online planning [P2]

Laboratory for Information and Control Systems, KAIST Feb. 2019 - July 2021
Undergrad. Researcher / Advisor: Prof. Han-Lim Choi

- Real-time 3-D mapping of dynamic environments [C7, C9]
- Learning and planning of dynamical systems [C10, J12, J13]

Inference and Information for Data Science Lab, KAIST Mar. 2018 - Jan. 2019
Undergrad. Researcher / Advisor: Prof. Hye Won Chung

- Representational capability of neural networks [C11]

Signal Kinetics Group, Media Lab, MIT June 2018 - Sep. 2018
Visiting Researcher / Advisor: Prof. Fadel Adib

- Non-contact vital sign monitoring via mmWave radar

Networking & Mobile Systems Lab, KAIST June 2017 - Feb. 2018
Undergrad. Researcher / Advisor: Prof. Sung-Ju Lee

- Indoor person localization via Wi-Fi signals

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

- [P1] “HardNet: Hard-Constrained Neural Networks with Universal Approximation Guarantees,” *preprint*
Youngjae Min, Navid Azizan [arXiv: 2410.10807]
NeurIPS Constrained ML Workshop 2025 (**selected as Oral**)
- [P2] “HOLO-MPPI: Multi-Scenario Motion Planning via Hierarchical Policy Optimization,” *preprint*
Youngjae Min, Jovin D’sa, Faizan M Tariq, David Isele, Navid Azizan, Sangjae Bae
- [P3] “SketchOGD: Memory-Efficient Continual Learning,” *preprint*
Youngjae Min, Benjamin Wright, Jeremy Bernstein, Navid Azizan [arXiv: 2305.16424]

- [P4] “ORFit: Efficient One-Pass Learning for Overparameterized Models,” *preprint*
Youngjae Min, Namhoon Cho, Navid Azizan
- [C5] “II-ORFit: One-Pass Learning with Bregman Projection”
 Namhoon Cho, **Youngjae Min**, Hyo-Sang Shin, Navid Azizan
ACC 2024 (Invited Session) - *American Control Conference*
- [C6] “Data-Driven Control with Inherent Lyapunov Stability”
Youngjae Min, Spencer M. Richards, Navid Azizan
CDC 2023 (Invited Session) - *IEEE Conference on Decision and Control* [\[arXiv: 2303.03157\]](#)
- [C7] “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* [\[arXiv: 2209.07764\]](#)
- [C8] “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* [\[arXiv: 2207.13853\]](#)
- [C9] “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*
- [C10] “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* [\[arXiv: 1909.11046\]](#)
- [C11] “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* [\[arXiv: 1904.09109\]](#)
- [J12] “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* [\[arXiv: 1903.08643\]](#)
- [J13] “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	MIT SoE MathWorks Fellowship, <i>MIT School of Engineering & MathWorks Inc.</i>	2025 - 2026
	KEF Scholarship, <i>Kwanjeong Educational Foundation</i>	2023 - 2027
	Global Leadership Award, <i>KAIST - Awarded to the top undergraduate for creativity</i>	2020
	GE Foundation Scholar-Leaders Program, <i>Fulbright / GE Foundation</i>	2015 - 2019
	KFAS Undergraduate Student Scholarship, <i>Korea Foundation for Advanced Studies</i>	2015 - 2019
	KAIST Presidential Fellowship, <i>KAIST - Awarded to the top 11 students of the Class of 2018</i>	2014

PROFESSIONAL ACTIVITIES **Reviewing** : American Control Conference (ACC), IEEE Conference on Decision and Control (CDC), IEEE Control Systems Letters (L-CSS), IEEE International Conference on Robotics and Automation (ICRA), IEEE Robotics and Automation Letters (RA-L), International Conference on Learning Representations (ICLR), Learning for Dynamics & Control (L4DC)