

YOUNGJAE MIN (민영제)

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INTERESTS	Reliable AI & Autonomy, Learning-Based Control, Continual Learning, Optimization		
EDUCATION	Massachusetts Institute of Technology Ph.D. Candidate in Aeronautics and Astronautics ◦ Also in Interdisciplinary Doctoral Program in Statistics	From June 2023 Advisor: Professor Navid Azizan	
	Massachusetts Institute of Technology S.M. in Aeronautics and Astronautics	Sep. 2021 - May 2023	
	Korea Advanced Institute of Science and Technology B.S. in Electrical Engineering, Mathematical Sciences (<i>summa cum laude</i>)	Mar. 2014 - Feb. 2020* (*two years in military)	
RESEARCH EXPERIENCE	Laboratory for Information and Decision Systems, MIT <i>Research Assistant / Advisor: Prof. Navid Azizan</i> ◦ Learning and control with provable input-output constraint satisfaction [P1 , C6] ◦ Online/continual learning robust to catastrophic forgetting [P4 , P3 , C5 , C8]	From Sep. 2021	
	CI Mobility Research Team, Honda Research Institute, CA <i>Research Intern / Advisor: Sangjae Bae</i> ◦ Motion planning via integrated offline RL and online planning [P2]	May 2025 - Aug. 2025	
	Laboratory for Information and Control Systems, KAIST <i>Undergrad. Researcher / Advisor: Prof. Han-Lim Choi</i> ◦ Real-time 3-D mapping of dynamic environments [C7 , C9] ◦ Learning and planning of dynamical systems [C10 , J12 , J13]	Feb. 2019 - July 2021	
	Inference and Information for Data Science Lab, KAIST <i>Undergrad. Researcher / Advisor: Prof. Hye Won Chung</i> ◦ Representational capability of neural networks [C11]	Mar. 2018 - Jan. 2019	
	Signal Kinetics Group, Media Lab, MIT <i>Visiting Researcher / Advisor: Prof. Fadel Adib</i> ◦ Non-contact vital sign monitoring via mmWave radar	June 2018 - Sep. 2018	
	Networking & Mobile Systems Lab, KAIST <i>Undergrad. Researcher / Advisor: Prof. Sung-Ju Lee</i> ◦ Indoor person localization via Wi-Fi signals	June 2017 - Feb. 2018	

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] “ Π -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</i> - Awarded to the top undergraduate for creativity	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</i> - Awarded to the top 11 students of the Class of 2018	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)
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