YOUNGJAE MIN

291 Daehak-ro, Yuseong-gu, Daejeon 34141, Republic of Korea
youngj0@mit.edu
https://youngjae-min.github.io

INTERESTS

Perception, inference, and machine learning in robotics system

EDUCATION

Massachusetts Institute of Technology — Cambridge, MA
Master Student in Dept. of Aeronautics and Astronautics — From Feb. 2021

Korea Advanced Institute of Science and Technology — Daejeon, Korea
B.S. in Electrical Engineering and Mathematical Sciences (double major) — Mar. 2014 - Feb. 2020*
GPA: 4.1/4.3 (*summa cum laude*)
*Paused two years for military service

RESEARCH EXPERIENCE

Bayesian Inference & Optimization | PI: Prof. Han-Lim Choi — Feb. 2019 - Jan. 2021
Laboratory for Information and Control Systems, Dept. of Aerospace Eng., KAIST

- Proposed 3-D occupancy grid mapping algorithm in dynamic environments from LiDAR data through kernel inference upon Bayesian formulation [C1]
- Proposed path planning algorithm of mobile sensor networks with stochastic motion model, which reflects GPS-denied environments, through combined Bayesian filters (PF and EKF) [C2]
- Proposed online learning of partially observable dynamical systems by applying variational inference methods on Gaussian process models [J2]
- Proposed non-myopic path planning algorithm of mobile sensors for multi-target tracking tasks by adopting distributive optimization algorithm, ADMM [J3]

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 networks that provably classify any dataset following separable distribution with small margin [C3, J1]

Vital Sign Monitoring | PI: Prof. Fadel Adib — June 2018 - Sep. 2018
Signal Kinetics Group, Media Lab, MIT

- Built real-time blood flow measurement system from scratch 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**, D. Kim, H. Choi
"Kernel-Based 3-D Dynamic Occupancy Grid Mapping with Particle Tracking"
submitted to *IEEE International Conference on Robotics and Automation* (ICRA)
2. **Y. Min**, S. Park, H. Choi [arXiv: 1909.11046]
"Informative Planning of Mobile Sensor Networks in GPS-Denied Environments"
AIAA SciTech: Guidance, Navigation, and Control (GN&C), Orlando, USA, Jan. 2020
3. **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

4. S. Kim, **Y. Min**, Y. H. Kim
"Measurements of sliding friction forces under ultrasonic oscillations: out-of-plane oscillations"
IEEE International Ultrasonics Symposium (IUS), Chicago, USA, Sep. 2014

5. G. Yun, K. Kim, Y. Roh, **Y. Min**, J. Lee, Y. H. Kim
"Comparison of slowness curves of Lamb wave with elastic moduli and crystal structure in silicon wafers," *IEEE International Ultrasonics Symposium* (IUS), Prague, Czech Republic, July 2013

Journal Articles

1. **Y. Min** and H. W. Chung
"Design of Neural Network Classifier for Linearly Separable Probability Distribution"
in preparation for *IEEE Transactions on Signal Processing* (TSP)

2. 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," submitted to *International Journal of Control, Automation and Systems*

3. 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, vol. 7, no. 1, pp. 163589-163603, Nov. 2019

4. **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, vol. 36, no. 1, pp. 1-8, Feb. 2016

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

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++, MATLAB, Python, ROS, CUDA, TensorFlow

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