HOTAE LEE

2 Commodore Dr., Emeryville, California, US

(+1) 510 646 5141 (+82) 10 8989 9320 ⋄ hotae.lee@berkeley.edu

RESEARCH INTERESTS

Motion Planning, Optimal Control/Model Predictive Control and Machine Learning

EDUCATION

University of California, Berkeley, Berkeley, United States   *Sep. 2019 - Present*
Ph.D. Candidate in Department of Mechanical Engineering
Seoul National University, Seoul, Republic of Korea   *Mar. 2012 - Aug. 2018*
B.S. in Department of Mechanical & Aerospace Engineering
   Graduated with second place honor in college of engineering (summa cum laude)

PUBLICATIONS

(* indicates co-first authors)

H. Lee and F. Borrelli, "Stochastic MPC using Parameterized Policy Learned Offline", 2024 (In preparation)

H. Lee and F. Borrelli, "Fast Stochastic MPC using Affine Disturbance Feedback Gains Learned Offline", in Proceedings of Learning for Dynamics and Control (L4DC), 2025 (Submitted)

S. H. Nair*, **H. Lee***, E. Joa*, et al. "Predictive control for autonomous driving with uncertain, multi-modal predictions", IEEE Transactions on Control Systems Technology, 2024

H. Lee, M. Bujarbaruah, and F. Borrelli, "Stochastic MPC with realization-adaptive constraint tightening", in 2023 American Control Conference (ACC). IEEE, pp. 1838-1843, 2023.

E. Joa*, **H. Lee***, E. Choi, and F. Borrelli, "Energy-Efficient Lane Changes Planning and Control for Connected Autonomous Vehicles on Urban Roads", in 2023 IEEE Intelligent Vehicles Symposium (IV). IEEE, pp. 908-913, 2023.

H. Lee, M. Bujarbaruah, and F. Borrelli, "Learning How to Solve Bubble Ball", in Proceedings of Learning for Dynamics and Control (L4DC). PMLR, pp. 1068-1079, 2021.

J. Kim*, M. Kim*, **H. Lee***, K. Kim*, J. Moon*, "A Contextual Inquiry of AVEC: Power Assist Wheelchair Enhancing Communication", in Proceedings of the 14th ACM/IEEE International Conference on Human Robot Interaction (HRI). IEEE, pp. 642-643, 2019

H. Lee, "Controlling Posture of Jumping Articulated Robot for Stable Landing", in Proceedings of the 15th IEEE Conference on Ubiquitous Robots (UR). IEEE, pp. 516-522, 2018

RESERACH EXPERIENCE

MPC Laboratory   *Sep. 2019 - Present*
Ph.D. Candidate

- Working on efficient Stochastic MPC algorithms for uncertain systems with data-driven methods
- Working on development of trajectory planner and controller on Connected Autonomous Vehicles (CAVs) and integrating ROS2 and CARLA simulations together to conduct HIL(Hardware-In-Loop) framework
- Worked on how to solve multi-contact dynamics based games using optimal control and machine learning

- *Advisor : Professor Francesco Borrelli, UC Berkeley*

Interactive & Networked Robotics Laboratory   *Mar. 2017 - July. 2018*
Internship

- Developed a control framework for the aerial posture of a jumping robot
- *Advisor : Professor Dongjun Lee, Seoul National University*

WORK EXPERIENCE

NAVER LABS / Robotics Group   *Aug. 2018 - Apr. 2019*
Research Internship

- Developed the controller of power-assisted wheelchair with human-interaction
- Integrated the whole system from sensors (IMU and force sensors) to system controllers
- *Advisor : Dr. Sangok Seok, Naverlabs*

TECHNICAL STRENGTHS

Programming Languages	C/C++, Python, MATLAB
Software & Tools	ROS1/2, TensorFlow/Pytorch, Casadi, CARLA, OpenAI gym

HONORS & AWARDS

Korean Government Scholarship for Study Overseas   *Sep. 2019 - Sep. 2021*
National Institute for International Education (NIIE), Seong-Nam, Republic of Korea
-$40,000 per year for excellent students who prepare to study abroad in graduate programs

Student Design Competition 2nd Prize   *Mar.2019*
International Conference on Human Robot Interaction (HRI), IEEE Robotics & Automation

The Presidential Science Scholarship   *Mar. 2012 - Aug. 2018*
Korea Student Aid Foundation (KOSAF), Seoul, Republic of Korea
-Full tuition & additional KRW 2.5million per semester for students of academic excellence

Outstanding B.S. Thesis Presentation Award   *Dec.2017*
Seoul National University (SNU), Seoul, Republic of Korea

The Research Support for Undergraduate Students   *Aug. 2017 - Dec. 2017*
Seoul National University (SNU), Seoul, Republic of Korea
-Support KRW 3 million as research fee for students with research excellence and interest

TEACHING EXPERIENCE

TA (Graduate Student Instructor)
Experiential Advanced Control Design I, UC Berkeley Mechanical Dep.   *Aug. 2024 - Present*
Tutor
Basic Physics 1 & 2, Seoul National University Physics Dep.   *Sep. 2016 - Jun. 2017*
Basic Physics 1 & 2, Seoul National University Physics Dep.   *Mar. 2013 - Dec. 2013*