HOTAE LEE

701, 376, Myeongil-ro, Gangdong-gu, Seoul, Republic of Korea
(+82) 10 8989 9320 ⋄ hotae319@snu.ac.kr

RESEARCH INTERESTS

Robotics Control, Optimization, Motion Planning and Reinforcement Learning

EDUCATION

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)
Overall GPA: 4.14/4.3 (Major GPA: 4.17/4.3)

Seoul Science High School, Seoul, Republic of Korea *Mar. 2009 - Feb. 2012*
School for gifted students

SCHOLARSHIPS FOR GRADUATE STUDY

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

PUBLICATION

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

K. Kim, J. Kim, **H. Lee**, J. Moon, M. Kim(all co-authors), "Power-Assisted Wheelchair Platform based on Loadcell Interface for the Elderly", in Proceedings of the 14th Korea Robotics Society Annual Conference (KRoC), Gangwon, Korea, Jan, 2019 (Accepted)

RESERACH EXPERIENCE

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

- Derived robot dynamics model of 4-Link jumping robot and applied passive decomposition
- Developed control framework for aerial posture of jumping robot with feedback linearization, time-varying control in Nonholonomic Caplygin system
- Developed greedy algorithm and gradient descent to find optimal control input
- Studied Hybrid Zero Dynamics, Lyapunov based nonlinear control, Under-actuated systems
- Applied robust/adaptive passivity based control to multi-WMRs formation control
- *Advisor : Professor Dongjun Lee, Seoul National University*

SNU Biorobotics Laboratory *Jan. 2017 - Feb. 2017*
UROP

- Studied Tendon-driven mechanism of assistive support system with 3D printing and Laser cutting
- Reduced the friction loss when using tendon-driven mechanism through Teflon-in-teflon structure
- *Advisor : Professor Kyujin Cho, Seoul National University*

WORK EXPERIENCE

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

- Developed the adaptive optimal controller of power-assisted wheelchair with human-interaction
- Integrated whole system from sensors and controller to communications
- Estimated the pose, inertia, external force with linear regression, sensor fusion, reaction force observer and extended kalman filter
- *Advisor : Dr. Sangok Seok, Naverlabs*

HONORS & AWARDS

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

Korea Physics Olympiad Winter School *Jan.2011*
Korean Physics Society, Seoul, Republic of Korea
-Physics program for gifted students to select a national representative

Korean Mathematics Olympiad *Aug.2008*
Korean Mathematic Society, Seoul, Republic of Korea
-Gold Medal

RELEVANT COURSES

Graduate Courses
Robot Mechanics & control
Vector Space Optimization
Stochastic Control & Reinforcement Learning
Control System (audited)

Undergraduate Courses
Principles of Flight Vehicle Control
Introduction to Robotics
System Analysis / Dynamics
Algorithm (audited)

TEACHING EXPERIENCE

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*

TECHNICAL STRENGTHS

Programming Languages C/C++, MATLAB, Arduino, Python, LabView
Software & Tools ROS, TensorFlow, LaTeX, OpenAI gym
Design SolidWorks, CATIA

EXTRA-CURRICULAR

Presentation Clubs Vice President, CISL *Sep. 2016 - Jun. 2017*

Sergeant, Military Service *Apr. 2014 - Apr. 2016*
35 Flight team, Republic of Korea Air Force (ROKAF)

Educational Volunteering, Seogok Community Service Center *Jan. 2015 - Oct. 2015*
Mathematics teacher for multi-cultural children

Education Volunteering, SNU Phronesis Official Volunteer *Sep. 2013 - Dec. 2013*

Street Dance club management staff, SNU HIS *Sep. 2012 - Dec. 2013*

Educational Volunteer work, SNU GIV *Mar. 2012 - Aug. 2012*