

Personal Info

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seungjae_lee@berkeley.edu
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Date of Birth

1988-Oct-12

Web

http://www.sjlazza.com

Skills

C++

4/5

MATLAB & Simulink

4/5

ROS

3/5

CATIA

4/5

LATEX

5/5

UAV Operation (w. Manual Control)

4/5

Languages

Korean

5/5 (Native Speaker)

English

4/5

Education

- 2016-03 – 2020-02 **Seoul National University, Seoul, Republic of Korea**
Ph. D. in Mechanical and Aerospace Engineering.
Advisor: H. Jin Kim
- 2014-03 – 2016-02 **Seoul National University, Seoul, Republic of Korea**
M. S. in Mechanical and Aerospace Engineering.
Advisor: H. Jin Kim
- 2008-03 – 2014-02 **Hanyang University, Seoul, Republic of Korea**
B. S. in Mechanical Engineering.
Advisor: Jong Hyeon Park

Academic Experiences

- 2020 – present **Postdoctoral Researcher**
High Performance Robotics Laboratory (HiPeRLab), UC Berkeley, Berkeley, CA, USA
• Berkeley – Army Research Laboratory (ARL) project PostDoc.
- 2014 – 2020 **Graduate Student**
Laboratory for Autonomous Robotics Research (LARR) (formerly ICSL), Seoul National University, Seoul, Korea
• Numerous Industry-Academia-Government projects.
- 2017 **International Research Intern (I2) @ NASA Ames Center**
Advanced Control and Evolvable Systems (ACES) Group, NASA ARC, Mountain View, CA, USA
• Performed research on developing DOB-based robust control technique for gust load alleviation (GLA) of fixed-wing aircraft with Variable Camber Continuous Trailing Edge Flap (VCCTEF) under cruising conditions.

Conferences (11)

- 2020-10 2020 IEEE International Conference on Intelligent Robots and Systems (**IROS**) – Presenter
Las Vegas, NV, USA
- 2019-10 2019 IEEE International Conference on Intelligent Robots and Systems (**IROS**)
Macau, China
- 2019-05 2019 IEEE International Conference on Robotics and Automation (**ICRA**) – Presenter
Montreal, QC, Canada
- 2018-06 2018 American Control Conference (**ACC**) – Presenter
Milwaukee, WI, USA
- 2018-05 2018 IEEE International Conference on Robotics and Automation (**ICRA**) – Presenter
Brisbane, QLD, Australia
- 2017-05 2017 IEEE International Conference on Robotics and Automation (**ICRA**) – Presenter
Singapore
- 2016-12 2016 IEEE Conference on Decision and Control (**CDC**) – Presenter
Las Vegas, NV, USA
- 2016-09 2016 International Astronautical Congress (**IAC**) – ISZ Poster Presenter
Guadalajara, Jalisco, Mexico
- 2015-11 2015 Asia-Pacific International Symposium on Aerospace Technology (**APISAT**) – Presenter
Cairns, QLD, Australia
- 2015-10 2015 Korea Navigation Institute (**KONI**) Annual Fall Conference – Presenter
Seoul, Korea
- 2015-05 2015 Institute of Control, Robotics and Systems (**ICROS**) Annual Spring Conference – Presenter
Seoul, Korea

Activities, Honors, Awards, Scholarships

- 2014 – present **Industry-Academia-Government Research Projects**
Research Participant (RP), Project Manager (PM)
[2020] UCB-ARL Scalable, Adaptive, and Resilient Autonomy (SARA) Project, RP
[2020] LARR-Hyundai Construction Equipment (HCE) Project, PM
[2018,9] LARR-CHEONG WA DAE Project, RP
[2017,8,9] ICSL-Ministry of Trade, Industry and Energy Project(2), PM
[2016,7,8] ICSL-Samsung Project, RP
[2016,7,8] ICSL-ministry of Trade, Industry and Energy Project, RP
[2015,6,7] ICSL-KTH (Sweden) Project, RP, PM
[2016] ICSL-Korea Aerospace Research Institute (KARI) Project, RP
[2016] ICSL-Agency for Defense Development (ADD) Project, RP
[2015,6] ICSL-Lockheed Martin Project, RP
[2014,5] ICSL-Hyundai Heavy Industry (HHI) Project, RP

Patents

International Patents

[Patent 2]

Name of Invention: Flight Vehicle

Patent Application Number:

US 16/760,276

Inventor: Seung Jae Lee and H. Jin Kim

Status: Patent applied (under review)

[Patent 1]

Name of Invention: Flight Vehicle

Patent Application Number:

PCT/KR2018/015715

Inventor: Seung Jae Lee and H. Jin Kim

Status: PCT registered

Domestic Patents (Korea)

[Patent 4]

Name of Invention: Flight Vehicle w.

Control Method (비행체 및 비행체 제어방법)

Patent Application Number:

2020-0047350

Inventor: Seung Jae and H. Jin Kim

Status: Patent applied (under review)

[Patent 3]

Name of Invention: Flight Module w.

Modular system (비행 모듈 및 이를 구비한 비행체)

Patent Application Number:

2020-0036174

Inventor: Seung Jae and H. Jin Kim

Status: Patent applied (under review)

[Patent 2]

Name of Invention: Flight Vehicle (비행체)

Patent Application Number:

2018-159014

Patent Registration Number:

10-2129075

Inventor: Seung Jae Lee and H. Jin Kim

Status: Registered

[Patent 1]

Name of Invention: Flight Vehicle (비행체)

Patent Application Number:

2017-0173277

Patent Registration Number:

10-1978888

Inventor: Seung Jae Lee and H. Jin Kim

Status: Patent Registered

International Seminars

[2018] SNU-Stanford Joint Workshop - Presenter

[2018] Seminar @ UC Berkeley - Presenter

Teaching Assistant

[2016] TA, B.S. thesis course.

[2015] TA & RA, Gyeonggi Science High School for the Gifted w. SNU.

[2014] TA, Principles of Control of Spacecraft and Aircraft.

Awards

[2018] **Silver Award**, Samsung Humantech Paper Awards

Title: Cargo Transportation with High Moment of Inertia Payload using T^3 -Multirotor (Prize: \$7K +\$4K (for advisor) (USD))

[2015] **Silver Award**, Hyundai E&C Tech. Awards.

Title: Stability Diagnosis System of Civil Structures using Autonomous Flight Drones (Prize: \$3K (USD))

[2013] **Excellence Award**, Hanyang University Capstone Design Fair

Title: Passive Control of Helium Buoyant Platform (Prize: \$0.5K (USD))

Scholarships

- SNU Space Convergence Education Track Scholarship, 2017-2018

- Brain Korea 21 (BK21) Scholarship, 2014-Present

- Academic Excellence Scholarship, 2013

2008–
2013

Research group of Automotive Control Engineering (RACE), Hanyang University

Member, Team Leader

[2013] Automotive Control and Electronics (ACE) Lab. – Undergrad. Intern.

[2013] Driving Training, Applus IDIADA, Spain (Instructor: Oliver Campos Hull)

[2012] The Korean Society of Automotive Engineers (KSAE) Baja/Formula Racing Competition – Team Leader, 2nd, 3rd prize (Baja)

[2009] Hyundai Motors Company (HMC) Global Market Research Center (GMRC) – Intern

[2009] The Korean Society of Automotive Engineers (KSAE) Baja Racing Competition – Team Leader, 2nd, 3rd prize

Publications (18)

[J]: Journal, [C]: Conference, [T]: Thesis

2020	[J]	Dongjae Lee, Hoseong Seo, Inkyu Jang, Seung Jae Lee , and H. Jin Kim, "Aerial Manipulator Pushing a Movable Structure using a DOB-based Robust Controller." IEEE Robotics and Automation Letters (RA-L), 2020. (SCI Q1, IF:3.608)
2020	[J]	Seung Jae Lee , Inkyu Jang, and H. Jin Kim, "Fail-safe Flight of a Fully-Actuated Quadcopter in a Single Motor Failure." IEEE Robotics and Automation Letters (RA-L), 2020. (SCI Q1, IF:3.608)
2020	[J]	Seung Jae Lee , Dongjae Lee, Junha Kim, Dabin Kim, Inkyu Jang, and H. Jin Kim, "Fully-Actuated Autonomous Flight of Thruster-Tilting Multirotor." IEEE Transactions on Mechatronics (T-Mech), 2020. (SCI Q1, IF:5.673)
2020	[T]	Seung Jae Lee , "Robust Control and Fully-Actuated Flight Mechanism for Multirotor-Based Versatile Aerial Robotics Platform." Ph. D. Thesis.
2019	[C]	Dabin Kim, Seung Jae Lee , and H. Jin Kim, "Trajectory Tracking for Cooperative Transportation with T3-Multirotor." 19 th International Conference on Control, Automation and Systems (ICCAS 2019)
2019	[J]	Seung Jae Lee , Seung Hyun Kim, and H. Jin Kim, "Robust Translational Force Control of Multi-Rotor UAV for Precise Acceleration Tracking." IEEE Transactions on Automation Science and Engineering (T-ASE), 2019. (SCI Q1, IF:4.938)
2019	[C]	Seung Jae Lee , Dongjae Lee, and H. Jin Kim, "Cargo Transportation Strategy using T^3 -Multirotor UAV." IEEE ICRA 2019 (Acceptance rate:44%)
2018	[C]	Seung Jae Lee , Kelley E. Hashemi, Michael C. Drew, Nhan T. Nguyen, and H. Jin Kim. "Robust Gust Load Alleviation Control using Disturbance Observer for Generic Flexible Wing Aircraft in Cruising Condition." ACC 2018
2018	[C]	Seung Jae Lee , Jaehyun Yoo and H. Jin Kim. "Design, Modeling and Control of T^3 -Multirotor: a Tilting Thruster Type Multirotor." IEEE ICRA 2018 (Acceptance rate:40.6%)
2017	[C]	Seung Jae Lee , and H. Jin Kim. "Autonomous Swing-Angle Estimation for Stable Slung-Load Flight of Multi-Rotor UAVs." IEEE ICRA 2017 (Acceptance rate:41%)
2017	[C]	Jaehyun Yoo, Seung Jae Lee , H. Jin Kim and Karl H. Johansson. "Trajectory Generation for Networked UAVs using Online Learning for Delay Compensation." IEEE CCTA 2017
2016	[C]	Seung Jae Lee , Suseong Kim, Karl Henrik Johansson and H. Jin Kim. "Robust Acceleration Control of a Hexarotor UAV with a Disturbance Observer." CDC 2016
2016	[T]	Seung Jae Lee . "Acceleration Control of a Multi-Rotor UAV with Disturbance Observer against Wind." M. S. Thesis
2016	[C]	Sangil Lee, Seung Jae Lee , Jaehyun Park and H. Jin Kim. "Exposure Correction and Image Blending for Planar Panorama Stitching." ICCAS 2016
2015	[C]	Seung Jae Lee and H. Jin Kim. "Control of Hexarotor Unmanned Aerial Vehicle for Outdoor Environment using Disturbance Observer." APISAT 2015
2015	[C]	Seung Jae Lee and H. Jin Kim. "Outdoor Hexarotor UAV Control with a High-Precision Real-Time Kinematic Differential GPS." ICROS 2015
2015	[C]	Seung Jae Lee and H. Jin Kim. "Design of the Yaw Estimation Algorithm for Outdoor Flight of the Hexarotor Unmanned Aerial Vehicle using Real Time Kinematic Differential GPS." KONI 2015

2013 [J] **SeungJae Lee, Yong Ho Kim, Dong Eun Kim.** “2013 Applus+IDIADA Proving Ground Driving Training Report.” – **Auto Journal** 35(4), 2013