

Jeonghyun Byun

PHD STUDENT

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Education

Seoul National University

PHD AEROSPACE ENGINEERING

- GPA: 3.98 / 4.3
- Advisor: H. Jin Kim

Seoul, Republic of Korea

2020.03.02 -

Seoul National University

BS AEROSPACE ENGINEERING

- GPA: 4.05 / 4.3
- Dissertation: Simulation of the object grabbing using a hexacopter with a 2-DOF robotic arm
- Advisor: H. Jin Kim

Seoul, Republic of Korea

2016.03.02 - 2020.02.26

Publications

INTERNATIONAL JOURNALS

Jeonghyun Byun¹, Inkyu Jang, Dongjae Lee, H. Jin Kim. A Hybrid Controller Enhancing Transient Performance for an Aerial Manipulator Extracting a Wedged Object. IEEE Transactions on Automation Science and Engineering (T-ASE), 2023.

Dongjae Lee¹ **Jeonghyun Byun**, H. Jin Kim. RISE-based trajectory tracking control of an aerial manipulator under uncertainty. IEEE Control Systems Letters (L-CSS), 2022.

INTERNATIONAL CONFERENCES

Dongjae Lee¹, Sunwoo Hwang, **Jeonghyun Byun**, H. Jin Kim. Autonomous Aerial Perching and Unperching Using Omnidirectional Tiltrotor and Switching Controller. 2024 International Conference on Robotics and Automation (ICRA).

Inkyu Jang¹, Sunwoo Hwang, **Jeonghyun Byun**, H. Jin Kim. Safe Receding Horizon Motion Planning with Infinitesimal Update Interval. 2024 International Conference on Robotics and Automation (ICRA).

Jeonghyun Byun¹, H. Jin Kim. Force-Tracking Performance Enhancing Hybrid Motion/Force Controller for Multirotor-Based Aerial Manipulator. 2023 23rd International Conference on Control, Automation and Systems (ICCAS).

Dohyun Eom¹, **Jeonghyun Byun**, H. Jin Kim. Robust Attitude Stabilization of Quadrotor via Adaptive Control based on Quaternion. 2023 23rd International Conference on Control, Automation and Systems (ICCAS).

Jeonghyun Byun¹, Byeongjun Kim, Changhyeon Kim, Donggeon David Oh, H. Jin Kim. Stable Contact Guaranteeing Motion/Force Control for an Aerial Manipulator on an Arbitrarily Tilted Surface. 2023 International Conference on Robotics and Automation (ICRA).

Byeongjun Kim¹, Dongjae Lee, **Jeonghyun Byun**, H. Jin Kim. Globally Defined Dynamic Modelling and Geometric Tracking Controller Design for Aerial Manipulator. 2023 International Conference on Robotics and Automation (ICRA).

Donggeon David Oh¹, **Jeonghyun Byun**, Dongjae Lee. Real-Time Trajectory Generation of a Quadrotor UAV with Load Suspended from a Pulley. 2022 21th International Conference on Control, Automation and Systems (ICCAS).

Jeonghyun Byun¹, H. Jin Kim, Miso Kwon. Hybrid motion/force control of the aerial manipulator without information on the added equipment. 2022 13rd Asian Control Conference (ASCC 2022).

Jeonghyun Byun¹, H. Jin Kim. Robust Control of the Aerial Manipulator with a Fixed End-effector Position. 2021 20th International Conference on Control, Automation and Systems (ICCAS). **Presented in Award Session**

Dongjae Lee¹, Inkyu Jang¹, **Jeonghyun Byun**, Hoseong Seo, H. Jin Kim. Real-Time Motion Planning of a Hydraulic Excavator using Trajectory Optimization and Model Predictive Control. 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

Jeonghyun Byun¹, Dongjae Lee, Hoseong Seo, Inkyu Jang, Jeongjun Choi, H. Jin Kim. Stability and Robustness Analysis of Plug-Pulling using an Aerial Manipulator. 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

Jeonghyun Byun¹, Dongjae Lee, H. Jin Kim, Hyeonbeom Lee. On-line Parameter Estimation of a Hexacopter Equipped with 2-DOF Robotic Arm against Disturbance. 2020 20th International Conference on Control, Automation and Systems (ICCAS).

DOMESTIC CONFERENCES

변정현, 김현진, “무인비행체를 통한 물리적 상호작용 과정에서의 천이 및 정상 상태 성능을 높이는 1차원 모션/힘 제어기”, 한국항공우주학회 2023 춘계 학술대회, April 19-21, 2023.

Honors

AWARDS

- 2022.11 **Incentive Award, Aerospace Paper Award**, Korea Aerospace Industries, LTD.
- 2020.02 **Award Certificate**, Department of Aerospace Engineering, Seoul National University
- 2020.02 **Summa Cum Laude**, Seoul National University
- 2018.09 **Honorable Mention, 7th SNU Creative Design Fair**, College of Engineering, Seoul National University
- 2017.09 **Honorable Mention, 6th SNU Creative Design Fair**, College of Engineering, Seoul National University

FELLOWSHIPS

- 2021.11 – **BK21 Excellent Research Talent Fellowship**, BrainKorea21PLUS
- 2020.02
- 2020.03 – **BK21 PLUS Doctoral Fellowship**, BrainKorea21PLUS
- 2020.08
- 2019.03 – **Eminence scholarship**, Seoul National University
- 2020.02
- 2018.11 **KAI-KSAS Scholarship**, Korean Aerospace Industry & Korean Society for Aeronautical and Space Sciences
- 2018.03 – **Sinyang Cultural Foundation Scholarship**, Sinyang Cultural Foundation
- 2019.02
- 2017.03 – **Eminence scholarship**, Seoul National University
- 2018.02
- 2016.09 – **Merit Based scholarship**, Seoul National University
- 2017.02

Teaching Experience

- 2021.03 - **Tutor, Engineering Maths 1, Seoul National University**, Solved some difficult problem sets
- 2021.06
- 2020.09 - **Teaching Assistant, Introductory Engineering Probability, Seoul National University**, Developed scoring criteria for the exams
- 2020.12
- 2020.09 - **Tutor, Physics 2, Seoul National University**, Solved some difficult problem sets
- 2020.12
- 2020.03 - **Teaching Assistant, Engineering Maths 1, Seoul National University**, Developed scoring criteria for the exams
- 2020.06
- 2017.03 - **Tutor, Physics, Seoul National University**, Solved some difficult problem sets
- 2018.06

Skills _____

Programming: C/C++, MATLAB

Language: Korean (native), English (proficient), French (elementary)

Tools: Git, ROS, Arduino, Fusion360, Onshape