

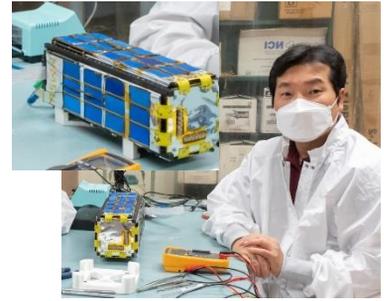


# Space Mobility & Robotics Lab

우주 모빌리티 및 로보틱스 연구실

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- 2003 B.S., Mechanical & Aerospace Engineering (MAE), Seoul National University
- 2003 – 05 First Lieutenant / Platoon Leader, ROK Marine Corps (SNU 101 ROTC 41<sup>st</sup>)
- 2008 M.S., MAE, Seoul National University
- 2009 Mechanical Engineer, Samsung Engineering
- 2014 Ph.D., Aerospace Engineering, University of Michigan, USA
- 2015 – 17 Research Associate, Naval Postgraduate School, USA
- 2018 – 23 Assistant Professor, MAE, New Mexico State University, USA
- 2023 – Assistant Professor, Aerospace Engineering, Seoul National University



## Research Topics

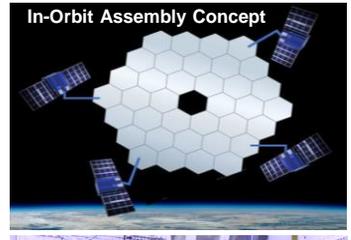
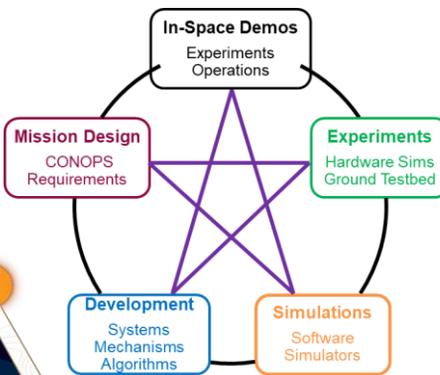
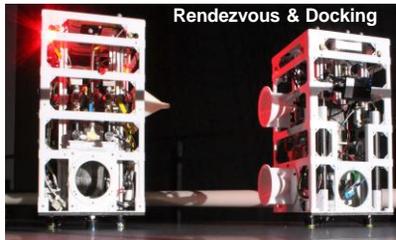
Space Mobility, Robotics, Logistics, Rendezvous & Docking, Distributed Space Systems, CubeSats, and Hypersonic Flight

### ❑ Mechanisms, Algorithms, and Systems for Spacecraft & Re-entry Vehicles

- Spacecraft rendezvous & docking for in-orbit service, assembly & manufacturing (ISAM)
- In-orbit assembly and cargo transportation using multiple small satellites with robotic arms
- Minimum-time attitude maneuvering for formation flying
- Hypersonic flight with aerodynamic heating constraints

### ❑ Lab Experimentation for Space Systems

- Development of hardware-in-the-loop testbeds for proximity operations
- Hardware-in-the-loop simulations on air-bearing testbeds (Naval Postgraduate School & Astrobee Facilities at NASA Ames)
- Miniaturized electromagnetic docking system design & testing



### ❑ CubeSat Mission and System Development

- Neutron detection using 3U CubeSat (INCA-AFRL)
- Distributed telescope for X-ray observation (VTXO-NASA)
- Distributed telescope for imaging sun's corona (VISORS-NSF)
- CubeSat rendezvous & docking (SASSAT-Northrop Grumman)

### ❑ In-Orbit Experimentation and Demonstration

- Space cargo-carrying experiment using multiple NASA Astrobee space robots on the International Space Station (planned in Oct. 2023)
- Precision attitude control with a settling-time requirement for VISORS mission (planned in 2024)

## Collaborators



## Sponsors

