

SPACEOTTER: A FLOATING SPACECRAFT SIMULATOR AIR BEARING VEHICLE FOR HARDWARE-IN-THE-LOOP EXPERIMENTS AND RESEARCH

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Growing interest in **nanosatellites** has increased demand for accessible ground-testing methods, which have historically been expensive and restricted. **Floating Spacecraft Simulators (FSS)**, built around **Air Bearing Vehicles (ABVs)**, address this gap by approximating a zero-gravity, friction-minimized environment suitable for **testing spacecraft control systems, robotics, and propulsion** on the ground.

This thesis presents the design, realization, and initial performance characterization of the **Space Optically Tracked Testbed for Experiments and Research (SpaceOTTER)** ABV, developed for the Cal Poly Space Robotics Lab. SpaceOTTER is the first step toward emulating the 3 Degree-of-Freedom (3-DOF) planar dynamics of a simulated spacecraft and is intended to serve as both a **teaching tool and a research asset** for students and faculty at the university.



**When:
Friday May 29
2:00 - 4:00 PM
Where:
Bldg. 192-321**

