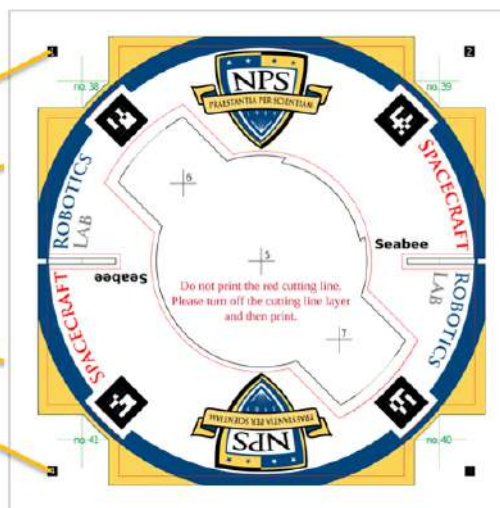


ASTROBATICS: a new way to fly the NASA “Astrobee” Space Robot on the International Space Station



Professor Marcello Romano leads a research team of six NPS graduate students and two postdoctoral associates in exploring new ways to fly an autonomous space robot. The project, ASTROBATICS, provides NPS students with a unique graduate-education experience and puts NPS at the worldwide forefront of space robotics research, together with peers such as Stanford and MIT. This research will contribute to the capability of humanity to explore and utilize space resources in Earth's orbit and beyond.

“Astrobee” is a NASA space robot onboard the International Space Station. It flies autonomously within the station and assists astronauts in everyday tasks. It is equipped with a small robotic arm, which allows it to grasp handrails typically used by astronauts. The central idea of Prof. Romano’s project is to “teach” Astrobee” to perform “astrobatic” maneuvers, i.e. to use its robotic arm to hop from one handrail to another, similar to how astronauts move in zero gravity. This type of maneuver could offer a disruptive new method of flying space robots, which is cheaper and more efficient.



ASTROBATICS flight experiments are currently being prepared through computer simulations and laboratory experiments at both NPS and the NASA Ames Research Center. They will be conducted in 2021 from the NPS Spacecraft Robotics Lab in direct communication with the astronauts on the International Space Station.

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