

Robotic Systems for Planetary Exploration

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Mechanical & Aerospace Engineering

This project will focus on the development of components within software and hardware systems where robotic systems are used for exploration, such as in Mars or Lunar exploration missions with rovers and astronauts. We are currently developing an indoor testbed facility based on the concept of robotic exploration, including key elements such as: multiple heterogeneous vehicles (rovers, walking robots), multiple heterogeneous sensors (laser range finder, camera/vision, infra-red/thermal), networking using wireless Ethernet, computer cluster for off-board control and data processing, and user interfaces using hand-held personal digital assistants (PDAs). A picture of the rovers is shown below.



Rovers

We are looking for a student to work with our research group to continue to develop the testbed and implement state-of-the-art estimation and control software. Students in MAE, ECE, and CS are all desired. Proficiency in programming in MATLAB, C/C++, vision systems, control systems, and communications are helpful but not required.