



Machine Intelligence Laboratory
<http://www.mil.ufl.edu>
National Science Foundation
Research Experience for Undergraduates in
DESIGN AND CONSTRUCTION OF AUTONOMOUS
ROBOTS AND MACHINE LEARNING



NSF

Program Description

This announcement solicits applicants for the *REU* site in the Department of Electrical and Computer Engineering at the University of Florida in the area of design and construction of autonomous robots and machine learning. The site

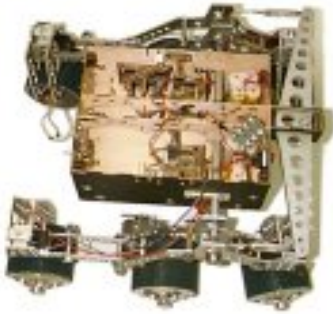


Figure 1. The MIL Rover

supports 12 students during the academic 2007 year. The proposed activity builds on the success of our previous REU sites (1998-2000, 2001-2004), our NSF-ILI sponsored laboratory, the *Intelligent Machines Design Laboratory (IMDL)* and the research activities of the *Machine Intelligence Laboratory (MIL)*. *IMDL* has trained over 300 undergraduates in robot construction and programming behaviors since fall 1994. A comprehensive list of projects, research topics and papers can be obtained from our web site. Each undergraduate REU participant will receive a budget to build and assemble his or her own platform. Also, participants, as members of a research team, augment, program, operate, and

modify a platform of their choice. Previous year projects included: (1) MilCart - an autonomous golf cart that performed obstacle avoidance and was equipped with an X86 and runs Linux, (2) MilMine - an autonomous mine detecting robot that used NATO-donated mine detection equipment, (3) MIL Rover (shown in Figure 1) - a redesign of the MIL Mars Sojourner autonomous agent with an X86 and Linux, (4) MilGyro - a one-wheeled autonomous robot, (4) SubjuGator 5 (see Figure 2) - an autonomous submarine project, headed by REU participants, which has included several 2005-06 REU participants and won 1st place at the 2005 and 2006 AUVSI underwater competition, and (5) MIL Hydrofoil (see Figure 3) - an robot hydrofoil. Participants will also study, develop and test novel machine learning algorithms through implementation on their platforms. We will carefully guide team participants in the process of development and testing of modern machine learning paradigms, thereby catapulting participants in the midst of state-of-the-art machine learning research. The *MIL* atmosphere is one of cooperation, partnership, camaraderie and friendship and is devoid of competition. *MILers* have an official student organization, socialize (movies, sports, etc.) and become life-long friends.



Figure 2 SubjuGator

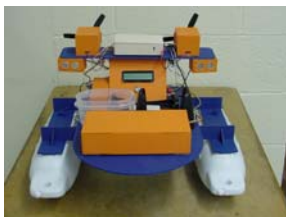


Figure 3. MIL Hydrofoil

Program Eligibility and Other Information

Any undergraduate student who is enrolled in a degree program (part-time or full-time) leading to a bachelor's degree in Engineering or Computer Science, who is **a citizen or a permanent resident of the United States and its possessions** is eligible and encouraged to apply. Applications from qualified women, Native Americans, African Americans, Native Pacific Islanders, Hispanics and persons with disabilities are highly encouraged. The program will provide subsistence (\$5,000 lump sum payment made approximately 2 weeks after arrival) for a 1 semester summer on-site experience. Qualifications will be based, in part, on the student's *GPA*, two faculty recommendations, and the student's practical, technical experience, if any.

Where: Machine Intelligence Laboratory (MIL), University of Florida, Gainesville, FL
Directors: Professors Antonio Arroyo and Eric Schwartz
When: Apply immediately for the Summer Semester beginning **May 14, 2007**
Application Deadline **March 16, 2007**
Web Site: <http://mil.ufl.edu/reu/>
E-mail: reu@mil.ufl.edu or arroyo@mil.ufl.edu or ems@mil.ufl.edu
Phones: (352) 392-2639 (Arroyo) or 392-2541 (Schwartz)

Request your Application Packet via the internet at <http://mil.ufl.edu/reu/>