

**Department of Mechanical Engineering
COLLEGE OF ENGINEERING**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 2, 2009

The Department of Mechanical Engineering is pleased to offer the following research project for the summer of 2009. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

Project Title: SWARM ROBOTICS

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Project Description

The student will be working in the Cooperative Distributed Systems Laboratory in the area of swarm robotics. The laboratory has several Kherepa III mobile robots with onboard sensing, communication, and processing capabilities. The experimental platform also has fixed sensors including cameras that provide the locations of the robots. The research in swarm robotics involves the development of algorithms for control of robots engaged in cooperative tasks in a distributed environment. Swarm robotics has been inspired from the existence of biological counterparts such as flocks of birds, schools of fishes, and swarms of ants. Algorithmic framework is needed that can capture the inherent properties of these systems such as robustness and adaptability. The student will be engaged in hardware integration, algorithm development for sensing and control, as well as its implementation on real robots. More information on the current research activities can be obtained from the lab's website "<http://www.min.uc.edu/CDS>".