College of Engineering
Summer Research Experience for Undergraduates Program

Request for an Engineering Student for Summer 2011 Research

Faculty Name ___Frank C Sup____________________________

Phone __________ 545-2946______________________

Department _____MIE_________ Email: ____sup@ecs.umass.edu____________

Brief description of Summer Research Project (please explain the interdisciplinary nature of this project).

Robotic prosthetic arms are being developed to the point where they can serve as a viable option to restore daily-life activities for amputees. Although some of the new prostheses are capable of the dexterous motions required by daily-life, users still lack feedback mechanisms to fully take advantage of and effectively control these robotic limbs. Human dexterity is enhanced by our proprioceptive feedback mechanisms that give us the ability to determine where in physical space each part of the human body is located in relation to the rest of the body without relying on vision. This project aims to develop a haptic feedback device for upper limb amputees that substitutes translational and vibratory sensations on the residual limb for proprioceptive information to assist the wearer in controlling their prosthesis.

Brief description of what the student will be doing:

The student would responsible for designing, fabricating and testing a proprioceptive feedback device using translational and vibratory mechanisms.

Is this a CASA-related project? Yes ___ No _X__

Preferred background of student (major(s), class, GPA, pre-requisites, etc.):

- Major: ME or EE
- Class: Entering 3rd year or higher
- GPA: 3.3 or higher
- An interest in building robotic devices

Did you mentor a student last summer in the College REU Program?
Yes____ No _X__

If yes, please describe the outcomes for that student (i.e. Honor’s thesis, conference presentations, manuscripts, papers, etc. Describe accomplishments to date as well as plans for the spring semester if the work has continued): n/a

Please return this form to:
Lorraine Robidoux,
REU Program Coordinator
129 Marston Hall
By Friday, February 4, 2011