College of Engineering
Summer Research Experience for Undergraduates Program

Request for an Engineering Student for Summer 2012 Research

Faculty Name _____Yahya Modarres-Sadeghi__________________________

Phone _______545-2468________________________________

Department ______MIE_________Email: ___modarres@engin.umass.edu______

Brief description of Summer Research Project (please explain the interdisciplinary nature of this project).
Biomimetics is a fast growing field of research, in which bioinspired devices are designed and built to achieve far-reaching engineering goals. Among these goals is being able to move quickly in water. Manmade ocean vehicles can benefit a lot from a bio-inspired mechanism, which enables them to accelerate more efficiently, or turn quickly. In this project, we study various fast-motion mechanisms that are used by ocean animals through designing and building mechanical devices that emulate their fast motion. This is an interdisciplinary research as it is of interest for engineers and biologists. Professional swimmers who compete for the Olympics can get inspired by the results of this research too – move faster and go for the Gold!

Brief description of what the student will be doing:
The student will work on designing and conducting experiments on bio-inspired fast-moving devices that are being developed in the Fluid-Structure Interactions lab. This will involve conducting tests in the water tunnel and water tank using various measurement devices and also analyzing the data. The student will work closely with a graduate student who is working on the project and will be actively involved in the project. The team will have regular meetings at least once a week with the faculty in order to discuss their progress.

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

Preferred background of student (major(s), class, GPA, pre-requisites, etc.): ME students with passion for research and a GPA of at least 3.5 are preferred.

Did you mentor a student last summer in the College REU Program?
Yes__X__ No ___

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):
I have had two REU students so far. They both had very successful experience. The results of their research were published in the form of a conference paper – a journal paper is in preparation. One of the REU students presented his work at the APS DFD conference in Long Beach.

Please return this form to: lrobidou@ecs.umass.edu by February 3, 2012