College of Engineering
Summer Research Experience for Undergraduates Program

Request for an Engineering Student for Summer 2013 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).
Cerebral aneurysms are the dilation, bulging, or ballooning-out of part of the wall of an artery in the brain. A patient with an arterial aneurysm lives with a high risk of sudden death due to the unpredictable rupture of the aneurysm. It is yet impossible to predict the growth rate and the risk of rupture for an arterial aneurysm. This project is concerned with the modeling of cerebral aneurysms in order to study the mechanism for their formation, the rate and dynamics of their growth and the events that lead to their rupture and the risk of such a devastating event using a nonlinear model for the aneurysm based on theoretical and experimental techniques. This is an interdisciplinary research as it is of interest for engineers, medical doctors and biologists.

Brief description of what the student will be doing:
The student will work on designing and conducting experiments in the Fluid-Structure Interactions lab. This will involve conducting tests 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 1, 2013