2005 Undergraduate Summer Research Opportunity in Software Engineering at Colorado State University

The “Testing UML Design” project team at Colorado State University may have funds to support one undergraduate student for eight weeks during the summer of 2005. Minority students with a strong interest in pursuing graduate studies are strongly encouraged to apply for this research position. It is expected that the student will start in early June. Below are some details on the research position.

Research Overview
The “Testing UML Design” project is funded by a National Science Foundation grant. Supplemental funding to support an undergraduate student has been recommended and final approval is pending. The project is concerned with developing a framework for testing software design models expressed in the Unified Modeling Language (UML). The framework facilitates early detection of design errors in complex systems and includes a tool for executing UML design models using generated test cases. The tool, EPTUD, is an Eclipse plug-in that supports executing design models consisting of sequence diagrams, activity diagrams, and class diagrams. The tool transforms design models into executable forms that utilize an underlying test infrastructure. The selected undergraduate student will work with the research team on evaluating the testing technique and adding new features to the EPTUD tool. For information about the project see the following website: http://www.cs.colostate.edu/~trungdt/uml_testing/uml_testing.html

The specific activities that the student will be engaged in are outlined below:

- Developing a graphical front-end for visualizing model execution: The student will develop a graphical front-end for the tool that will allow users to visualize the execution of the models on tests by animating the UML design models.
- Evaluating the tool and the technique: The student will assist the PIs and the graduate research assistant in setting up and carrying out evaluation studies that involve applying the tool and the testing technique on “real-world” software development problems.
- Developing demonstration examples and other user-related documentation and teaching material: The student will work with the PIs to develop a set of demonstration examples that can be used in the classroom to illustrate use of the technique and tool. These demonstration examples will be packaged with other teaching materials related to testing of UML design models in teaching modules that will also be made available with the tool.

Required Skills
We are looking for a student who has the following skill set:

- Very good Java programming skills
Some familiarity with the UML: class diagrams, sequence diagrams

Working knowledge of the Eclipse framework (http://www.eclipse.org) will be an asset.

The selected student is expected to start in the first week of June. Preference will be
given to senior students who are interested in pursuing graduate studies in Software
Engineering.

**Stipend and Allowances**
The student is expected to work 8 weeks full-time (40hrs/week) during the summer. The
stipend will be $12/hour (total for 8 weeks is $3,840).

Airfare up to $400 will be covered by the project. An allowance of $575 per month
(maximum 2 months) will be provided to covering lodging.

**Application and Contact Information**
Applicants should provide the following information:

- Full name
- Student status (sophomore, junior, senior)
- Contact address, daytime telephone number, and email address
- Evidence of Java and UML knowledge (e.g., list of courses taken that required
  creating Java programs and creating UML models)
- Brief statement stating your interests in Software Engineering research.

Each applicant must also have his/her software engineering Professor submit an email
recommendation.

The applications and recommendations must be sent via email to Dr. Robert France using
the following email address: france@cs.colostate.edu
Signed applications and recommendation letters must be faxed to 970-491-2466

Please contact Robert France with any queries:
Dr. Robert France
Department of Computer Science
Colorado State University, Fort Collins, CO 80523
Email: france@cs.colostate.edu
Telephone: 970-491-6356