

**DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
AND COMPUTER SCIENCE**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: MARCH 1, 2002

The Department of Electrical and Computer Engineering and Computer Science is pleased to offer the following research projects for the summer of 2002. Interested students are urged to contact the faculty member(s) directing the project(s) that most interest 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.

Professor Carla Purdy

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As computational problems grow in size and complexity, proven analytic methods of solution become infeasible. Experimental methods, often relying on heuristics, must be used instead. Due to the sizes of today's interesting problems, experiments can no longer be performed effectively by isolated researchers; instead, large teams of researchers, often physically separated, need to collaborate. In addition, basic statistical analysis can be carried out by user-friendly software agents. In our lab we are developing web-based tools for collaborating in the design of hardware and software systems. A student who wishes to participate in this research should have experience in programming in Java or C++.

Professor K. P. Roenker

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This project provides an opportunity to work on the computer modeling of the operation of new semiconductor devices including advanced, high-speed transistors in new materials for applications such as cellular phones. There also exists the possibility for simulation work on advanced optoelectronic devices for optical fiber communications. These projects make use of a state-of-the-art commercial simulation package running on workstations so the student need not write and develop new programs. Prior knowledge of semiconductor devices is not expected, but this work will provide an opportunity to learn about the devices and their operation. Summer students will work side by side with current graduate students working on similar projects who will be available to provide an introduction and continuing help in running the software.