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Women in Computing: Collaborative Research Experience for Women in Undergraduate Computer Science and Engineering (CREW) Program

by Jennifer P. Rubinstein

USENIX & SAGE

women in computing

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A nerd hunches in a cubicle pounding away at her keyboard 24/7. She is successful, but is that what most women beginning a computing career want?

This image may discourage many undergraduate students from pursuing a career in computing research.

"The stereotype of the loner computer scientist can be especially deterrent to women," said Jan Cuny, 1997-2000 co-chair of the Computing Research Association Committee on the Status of Women in Computing Research (CRA-W). "Women tend to be more motivated by interaction, and so may be rebuffed by the isolation assumed to be associated with research."

To address this stereotype, the Computing Research Association's Committee on the Status of Women (CRA-W) has been implementing a variety of programs.

With support from USENIX and the National Science Foundation, the Collaborative Research Experience for Women in Undergraduate Computer Science and Engineering (CREW) program gives undergraduate women the opportunity to experience a year-long research project. It is hoped that this experience will show students a more realistic view of a career in computing and encourage them to attend graduate school. CREW supports the formation of teams of undergraduate women who collaborate on joint research projects under the direction of a faculty member at their home institutions during the academic year.

Dr. Lynn Stauffer from Sonoma State University describes the research experience she had with her students this way: "I have found the CREW program to be a wonderful way to introduce talented CS students to research at our small university. Without a graduate program and with a demanding local high-technology industry, our computer science department has a tough time interesting students in research work that does not have any monetary benefits (i.e., talented CS students can easily find well-paying internships nearby). Also, the simplified application process makes putting a proposal together more doable for already very busy faculty. In fact, I found the proposal writing part of the project particularly enjoyable, and I believe the student researchers learned a lot from the experience."

In the last few years, CREW teams have studied robot navigation and vision, parallel processor communication, Web navigation, and integrated circuit design. At the end of their projects, students write summaries of their work and are encouraged to submit papers and present their work to other appropriate journals and conferences. Students have presented their work at CHI 2001, SIGCSE 2001 and the National Conference on Undergraduate Research.

There were eight projects funded in 1998-1999, 10 projects in 1999-2000, and 11 projects in 2000-2001. The fourth year's awards will be announced June 30 for the 2001-2002 academic year. Because of additional funding from USENIX, twice as many projects as previous years will be funded for next year. It is hoped that by securing even

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more funding, as many as 100 projects for the 2002-2003 academic year can be supported. An average of three students collaborate on each project, so the impact on individuals and institutions is substantial.

Evaluation results from the first three years of the program have been encouraging. Based on student surveys:

- 75% indicated that this was their first experience doing research
- 67% indicated that they plan to attend graduate school
- 25% credited CREW for their increased interest in and preparation for graduate school

If CREW can increase graduate school enrollment for women by 25% as it scales up to 100 projects, that would mean an additional 75 or more women choosing to attend graduate school every year.

CRA-W was established in 1991 with the goal of taking positive action to increase the number and success of women in CS&E research. The committee is comprised of leaders in computing research from academia and industry. It is an action-based committee, implementing projects that aim to eliminate barriers to the full participation of women. More information about CRA-W and CREW can be found at *<http://www.cra.org/craw/>*.

The Computing Research Association is a tax-exempt (501c3) association of more than 180 North American academic departments of computer science and engineering (CS&E); 25 research laboratories and centers in industry, government, and academia engaging in basic computing research; and six affiliated professional societies [USENIX being one]. CRA works to strengthen research and education in the computing fields, expand opportunities for women and minorities, and improve public understanding of the importance of computing and computing research in our society. More information about CRA is available at *<www.cra.org/>*.