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Saluting our schools

Tufts University attracts women to computer science

The campus culture is welcoming, with a growing number of female faculty and students

Professor Diane Souvaine joined the faculty at Tufts University (Medford, MA) in 1998, and was promoted to chair of computer science when a formal CS department was created in 2002. Souvaine credits the department's success to its innovative teaching approach.

Founded in 1852, Tufts has a long history of academic excellence, but its CS department, like so many others, had typically been male-dominated.

"In 2000 we became concerned about both the lack of diversity in our introductory computer science courses, and the fact that a significant number of our students were dropping the courses midterm," says Souvaine. "So we created a new course, 'Exploring Computer Science,' to entice students who are new to the discipline. This course focuses less on programming and more on the practical, problem-solving aspects of a computer-based solution."

Fourteen men and fourteen women were enrolled the first time the course was offered. Ten of each gender continued on to take the department's traditional CS courses, and seven of each gender eventually graduated with CS degrees. One received the department's top award.

Souvaine's efforts have produced significant results. Women now make up more than 30 percent of students in lower-level CS courses and almost 50 percent of the PhD program.

The department's current faculty has more

Professor Diane Souvaine: "Our department is stronger, because our population models the world."

Fourth year PhD student Elena Jakubiak enjoys the large number of female faculty and the diverse environment.

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women than men, but Souvaine insists that she has not made a conscious effort to hire females. "I've always resisted categorization of people and ideas by gender," says Souvaine. "We have a very collaborative community with faculty and students working together. I believe our department is stronger and our quality of work is better, because we have a population that more closely models the population of the world."

Elena Jakubiak enjoys the school's diversity

Elena Jakubiak is a fourth year PhD student in CS. "Although I didn't sit down and say 'I want to go here because the faculty is half women,' that's one of the amazing things about this program that you don't find at other universities. I also really like the accessibility of the department faculty, and the flexible environment is supportive of students with diverse backgrounds and degrees."

Jakubiak graduated from Brown University (Providence, RI) in 1998 with an applied mathematics degree, and then began graduate school at the University of Wisconsin (Madison, WI). After a year she realized she was more interested in programming than math, so she took a leave of absence to work in programming, first at SAIC and then at a smaller firm, both in Boston. "I hadn't been a computer science student, and I felt that there were a lot of things I didn't really know about computer science," she says. "I needed the CS equivalent of a post-bac pre-med program. Tufts was exactly what I needed."

The post-baccalaureate program consists of five courses, the equivalent of a minor in CS. Jakubiak completed it in three semesters. "I worked full time during the first two semesters, and then realized that I wanted to make a career change from mathematics to computer science." She applied to several graduate schools, and also landed a paid internship in computer graphics at Mitsubishi Electric Research Laboratories (Cambridge, MA).

She was accepted at all but one of the schools she'd applied to, but Jakubiak decided to return to Tufts. "I really enjoyed Tufts. I knew the professors, and quite a few of the post-bac students were undergrads in mathematics or linguistics," she remarks. "Tufts also offered to support my dissertation research with Mitsubishi. The school's overall positive attitude toward my education is what ultimately brought me back."
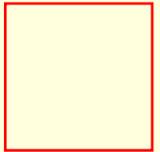
Jakubiak is currently working on her dissertation, for which she's investigating methods of representing Chinese-based language on small electronic devices like PDAs. "I'm also involved in a couple of different groups, including the Computing Undergraduates Scholars Program (CUSP). CUSP consists of twelve undergrads who are funded for yearlong research projects with a faculty advisor and grad students. It's a great way for undergrads to gain exposure to computer science research."

Erin Treacy studies brain-computer interaction

After Erin Treacy earned her 2001 bachelors in CS at Harvard (Cambridge, MA), she moved to California to work for Oracle (Redwood Shores, CA). She returned to Boston a couple of years later, and worked remotely for the company. Her passion for human-computer interaction, a unique

Erin Treacy is collaborating with two classmates on the use of non-invasive brain measurement technology.

combination of CS and psychology, convinced her to pursue an advanced degree in CS.

"Before I moved back east, the people in the user research division at Oracle recommended Robert Jacob, who teaches at Tufts," says Treacy. "When I moved to Boston I started taking evening classes with him, and he took the time to get to know me. That's when I knew that Tufts was the perfect place for me.

"As a woman in computer science you can sometimes feel isolated. I don't feel that way at Tufts," she adds. "I've talked to faculty members, and they're so happy teaching here. The department is small, and it offers a lot of flexibility."

For the last year Treacy has been collaborating with two other female students using non-invasive brain measurement technology to determine "the level of workload someone is experiencing while they're using an interface," she explains.

Rachel Lomasky welcomes a supportive environment

Rachel Lomasky got her undergraduate CS degree from Wellesley College (Wellesley, MA) in 2001. She did some computer consulting, but then decided to go on to grad school. Now a fourth year PhD student at Tufts, Lomasky does research in machine learning, at the intersection of artificial intelligence and data learning.

Rachel Lomasky.

"I applied to several Boston area schools, but Tufts appealed to me on several levels," says Lomasky. "I feel that the campus culture is more supportive of women grad students. I think it's the size and the number of women professors that make the culture more collaborative than competitive."

Lomasky helped start Tufts' Women in Computer Science (WICS) program, in which grad students organize workshops and lunches for undergraduates. "Although the grad students and faculty are balanced in terms of gender, the undergrads aren't as balanced. The workshops are for everyone. The students get the chance to talk to a grad student in CS, and get a glimpse of their future at Tufts."

Umaa Rebbapragada pursues her PhD

Umaa Rebbapragada is a third year PhD student at Tufts. Her parents came to the U.S. from India.

Rebbapragada was a mathematics major at the University of California-Berkeley. She found a job at CNet Networks (San Franscisco, CA), but she too felt that she was missing something without a CS background.

Umaa Rebbapragada.

"I Googled post-bac programs and discovered the one at Tufts. I was able to transfer within my company and attend school at night for two years. It wasn't easy, but I had some flexibility with my job.

"The post-bac program got me interested in the graduate program. I applied at other colleges, but then my female advisor spoke with me about staying," says Rebbapragada. "Although I was accustomed to a

male-dominated environment, I felt Tufts' female advisors and the small school setting related more personally to me and my career path."

Rebbapragada also works with undergrads through the WICS. "We are all committed to mentoring undergrads. I think you can really feel that welcoming attitude when you arrive on campus."

D/C

- Kate Colborn and Diana Rowe

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