

Computer science project promotes collaboration

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<http://www.uwosh.edu/today/2212/computer-science-project-promotes-collaboration/>

Take the rigors of pursuing a Ph.D. — including research, collaboration and presentations — then condense it into an eight-week program, and you have an idea of what two University of Wisconsin Oshkosh faculty members cooked up for eight students over the course of last summer.

David Furcy and Tom Naps, computer science professors united in their passion for teaching and their field, created a research experience for undergraduates (REU) that explores open-source software through the development and efficacy of online learning environments.

Out of the more than 40 applicants, eight students from across the country were chosen to come to UW Oshkosh on May 27 to build tools to help other students learn algorithms — which, according to Furcy, can be pretty tricky.

“The goal of our REU was to, in general, improve computer science education in general,” Furcy said. “Our project was for students to build tutorials for other students.”

The REU received support in the amount of \$261,167 from the National Science Foundation (NSF), which covered students’ stipends, food, lodgings, travel and registration for the Consortium for Computing Sciences in Colleges’ upcoming conference in Chicago, where they will present their work.

“Our program plugs into the overall goal of the NSF because our students contributed to a large, open-source project,” Naps said. “The students were not developing just one specific tool, but rather contributed to a much larger framework that is free and distributed in an open way.”

The continuing growth of open source software — such as Linux operating system, Firefox Web browser and Apache Web server — presents challenges and opportunities for computer science and research. Furthermore, preparation for careers in computer science will require new ways of thinking about software design in order to meet the needs of the open-source community.

Both Furcy and Naps have been involved with the Java-Hosted Algorithm Visualization Environment (JHAVÉ) for a number of years, working with professors at other institutions. During the REU at UW Oshkosh, four groups of two undergraduate students picked an algorithm for which to develop a visualization aid.

“For some of the students, it was the first time they worked on something as part of a team. They had individual projects, but they also were providing feedback on one another’s projects,” Naps said. “Working in a group is a crucial research experience.”

Added Furcy, “The key difficulty is that this is not coursework with assignment due dates. Students had to get the job done in eight weeks no matter how much work it took.”

The professors saw the REU as an ideal introduction to education beyond a bachelor's degree.

“If students consider going on to graduate school after this, they picked up research experience they can include in their application and two references who know their ability and experience,” Naps said.

Because JHAVÉ has had so many collaborators, Furcy and Naps were able to bring in experts to work with the students, including faculty members from Alma College, Duke University and Virginia Tech, as well as Brian Paul, a 1990 UW Oshkosh alumnus who was honored with the Free Software Foundation Award in 2001.

Furcy and Naps describe the summer's experiences as a success and hope students will take their work back to their professors to be used in classrooms at their respective universities.

Two UW Oshkosh students, Erica Mutsch and Eric Schultz were among the eight undergraduates chosen for the REU. The other students represented Alma College in Alma, Mich.; Centre College in Danville, Ky.; Coe College in Cedar Rapids, Iowa; Eastern Washington University in Cheney, Wash.; State University of New York in Plattsburgh, N.Y.; and Xavier University in Cincinnati, Ohio.

The NSF grant funded three summer sessions for the REU. Applications for summer 2010 will be accepted starting late winter or early spring.

- For more about JHAVÉ, visit <http://jhave.org>.
- For more about UW Oshkosh's computer science REU, visit www.uwosh.edu/computer_science/reu-site-summer-2009/reu-in-cs-online-learning-environments