



IROP

UNIVERSITY of NEW HAMPSHIRE
INTERNATIONAL RESEARCH OPPORTUNITIES PROGRAM



From Mount Olympus to Capitol Hill

Joel Daniels, a computer science major with dreadlocks, may have been the first—and last—beauty-pageant contestant to perform a mathematical proof in a talent show. Perhaps that is why he failed to win Kappa Delta sorority’s “Greek God” contest in March.

While the other contestants imitated *NSYNC and “Saturday Night Live” skits, Daniels used an overhead projector to explain deMorgan’s Theorem. The audience “sat there perplexed,” he recalls with self-deprecating humor. “It was fun!”

Daniels may not be a Greek God in the eyes of UNH sorority sisters, but he has plenty of other laurels to wear. Valedictorian of the class of 1999 at Goffstown (N.H.) High School, Daniels came to UNH with a Presidential Scholarship.

During his sophomore year, he caught the eye of Computer Science Professor Phil Hatcher, who urged him to apply to the IROP. With an IROP grant, as well as added funding from the National Science Foundation grant that Hatcher co-directs, Daniels spent last summer performing research at an institute in Rennes, France.

Daniels worked on ways to increase computer network performance in “grid computing”—the use of multiple personal computers linked together through a wide area network to form a virtual supercomputer. More than a million PCs around the world have been involved in grid-computing searches for drugs to cure cancer, anthrax, and smallpox, for example.

“If you want someone to be a researcher, you need to treat him like a researcher,” Hatcher notes. “Joel was able to walk in as a junior and went to work with a group of graduate students and Ph.D.’s, and it was a tremendous environment for him.”

Daniels was prepared for this experience not only by his coursework, but also by his job at the UNH InterOperability Lab (IOL). “The IOL has been teaching me the real-world application of all the things I’ve learned in class,” he explains.

In France, Daniels learned a lot about using multiple parallel TCP sockets to increase the realized bandwidth over a wide area network. But he may have learned just as much about human “networking” as he did about computer networking.

Writing to a UNH online message board from France, he observed what appeared to be a “lax environment” in which his French colleagues made frequent trips to the cafeteria for “tiny cups of coffee.” But he discovered those breaks were conducive to “communication of problems, work related and non. They have created a much more social atmosphere that conflicts with my American teachings of solitude and isolation, and a bottomless cup of watered-down coffee.” In short, he concluded: “The French have developed a system to produce the impossible: computer scientists with social skills.”

Back on campus at an IROP Adventures Symposium, Daniels used his own social skills to put on a witty and insightful presentation of his experiences in France, wowing the audience from all reports. He also used his research for his honors thesis and to enter the national competition for the Posters on the Hill program. Having been excluded from Mount Olympus in March, he shaved his dreadlocks and went on to hobnob with senators on Capitol Hill.

—Virginia Stuart, UNH Magazine

©2002, University of New Hampshire, Undergraduate Research Opportunities Program, 209 Hood House, (603) 862-4323, urop@unh.edu