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Summer Institute offers computer interfacing experience

Last month, **Dr. Frank Severance**, a professor in the Department of Electrical and Computer Engineering (ECE) and **Dr. John Kapenga**, a professor in the Department of Computer Science (CS), offered a weeklong Summer Institute in programming to area high school students.

The institute focused on computer engineering, providing the students with “an overview of a four-year computer engineering program in a week to see if they’re interested,” Severance said.

Three area high school students attended the workshop that was held at the CEAS Parkview Campus. For five hours each day they enjoyed programming and interfacing directly with electronic gizmos. They used neither monitors nor keyboards.

Using C and C-sharp programming languages, the students learned how to use microcontrollers to physically communicate with an electronic board.

Severance explained that what made the institute experience unique was interfacing the computer with the outside world, including speakers and lights. “With interfacing, you can create voice sounds,” Severance said. “You can speak into a microphone and your words can be translated into the language of Dr. Who, who has a distorted metallic man sound.”

Contents of the institute included the study of circuitry and electronics. “That’s what computer engineers do,” Severance said. “They get programs to talk to the electronics, which talks to the world.”

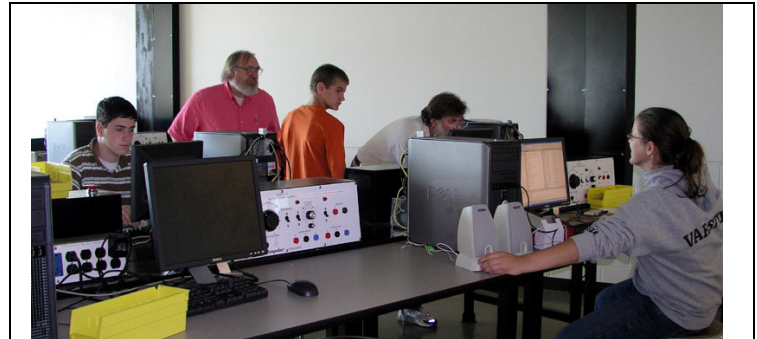


Attending the first CEAS Summer Institute devoted to interfacing computers with electronics via microcontrollers, **Rebecca Farrer**, a senior at Hackett High School and KAMSC, learned to program a microcontroller and to use a bread board and circuitry.

Because the class was small, the students benefited from the tutorial support in enhancing their understanding concepts that will benefit them in their future careers.

Jason Pearson, a sophomore at PCHS, said the workshop fit well with his plans to find a career in game designing. “I’ve learned a lot this week,” he said.

Eric Smith, a junior at Portage Central and at the Kalamazoo Area Math and Science Center (KAMSC),



Working at the first CEAS Summer Institute on computer engineering are (from left) **Eric Smith**, **Dr. Frank Severance**, **Jason Pearson**, **Dr. John Kapenga**, and **Rebecca Farrer**

expressed an interest in a future career in computers. He has taken a previous C++ language class and has used it in other programs. At the workshop, he wrote a program that created organ music.

Rebecca Farrer, a Hackett and KAMSC senior whose career goals include either computer or electrical engineering, had also taken a class in C++ language. She credited the institute for enhancing her understanding in several areas. “I learned a lot this week about how to use the microcontrollers and how to use bread boards and circuitry, and I learned more about the programming,” she said.

Severance, who has been involved in past Summer Institutes, said he and Kapenga had discussed offering a summer institute on computer engineering for some time. “This year we decided to go for it,” he said.

Kapenga said that preparing for the first week’s activities had been challenging. “We know what to teach college freshmen, but we had to figure out what to teach bright, motivated high school students,” he said.

The professors credited several sources for supporting this year’s event. **Texas Instruments** donated parts, meals, and tee shirts. **Provost Tim Greene**, who was CEAS dean when the institute was approved last April, provided funding, and **Nuts and Bolts** donated magazines.

This is the first of what the two professors plan to offer annually. They were pleased with the first-year of the institute. Applications for next year’s workshop will be sent out in January.

Contact frank.severance@wmich.edu or john.kapenga@wmich.edu for more information.

Send your thoughts or suggestions for future topics to the editor at jerrie.fiala@wmich.edu Thank you.