2014 ASEE CACHE Award Winner: Jim Henry, University of Tennessee-Chattanooga

Ten years into his tenure at the University of Tennessee-Chattanooga, Jim Henry decided to run a remote chemical engineering lab, back when the word "Internet" was hardly a commonly used word. In 1990, Henry began computerizing the connections to his chemical engineering lab and in 1994, he began to wonder if he could connect the computers to the Internet. At a conference in Anaheim, California, Henry asked colleagues from around the country for input, but no one knew a way to make it happen. He even posted an invitation to work on a solution on a bulletin board, but he got no takers.

When he returned to Chattanooga, he researched the Internet and explored a way to establish communication with computers. It took him about four months to figure out a way to have one of his computers communicate with the Internet, allowing students to operate and collect data from Unit Operations and Control System equipment on demand. He was among the first in the world to make the connection, so that his web-interface could reach students from schools around the world. He has continued to collaborate with other schools and faculty to encourage the development of this capability.

To honor his career-long emphasis of using computer methods in chemical engineering education and his innovation and commitment to developing remotely operated laboratory equipment at The University of Tennessee at Chattanooga, Henry received the CACHE Award for Excellence in Computing in Chemical Engineering Education. This award is sponsored by the CACHE Corporation, and is presented by the Chemical Engineering Division of the American Society of Engineering Education (ASEE) at the ASEE Annual Conference awards banquet.

Henry, Professor Emeritus in UTC Chemical Engineering, has collaborated with institutions from Mexico, Germany, Armenia, Indonesia, Romania, Australia, as well as numerous locations in the United States. Dr. Oleg Gasparyan, a professor in Armenia, has maintained a professional relationship with Henry for many years. He wrote a letter of support to ASEE on behalf of Henry.

“It is interesting that in addition to operating the physical equipment located at UTC, WEB users are able to listen to the sounds of the equipment (motors and valves) while they operate and even view the experiments with live RealVideo streaming. It gives the user a full sense of presence at the real (not virtual) laboratory,” Gasparyan said in the letter.

One of the most productive relationships Henry established was with a colleague at Worcester Polytechnic Institute. The colleague’s classes were overflowing, and he needed his students to have access to more equipment. “Half of his students have run experiments at UTC remotely, and half run them on his campus in New England,” Henry explained. “That’s been going on for nearly a decade.”

No one is happier for Henry to receive the award than Dr. Neslihan Alp, Interim Dean of the College of Engineering and Computer Science. Henry was Alp’s mentor when she arrived at UTC. For six years, she had the benefit of working with an engineering colleague who was not in her department.

“He guided me and prepared me so that I could attain tenure,” Alp explained. “We met on a regular basis—he was open, friendly, he had a sense of humor—it was clear to me why his students loved him. He is the kind of faculty member who has a vision. He enjoys learning, he likes to try new methods and techniques. This award honors an extremely knowledgeable man who is a great asset to the College and UTC. Even though he is retired, he continues to help and support us at UTC.”

Dr. Bryan Ennis agrees. Ennis, UTC Department of Civil and Chemical Engineering faculty, has enjoyed working with Henry.

“Dr. Henry’s pioneering work continues through National Science Foundation (NSF) and other proposals being submitted by UTC engineering and computer science faculty, aimed at deploying the remote lab experience to the global community and developing countries,” Ennis said. “The objective of this work is to develop effective sandboxes where students and researchers might interactively conduct real-time single and collaborative experiments.”