



Software for Operating Tools Remotely

Ohio State University researchers present the Remote Instrumentation Collaboration Environment

By [Dr. Dobb's Journal](#)

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Researchers at Ohio State University are developing software that allows scientists to operate (and share operation of) research tools -- such as high-powered microscopes and telescopes -- over the Internet.

At the recent [IMMERSCOM](#)

telecommunications conference in Verona, Italy, Ohio State doctoral student Prasad Calyam described the first test of the Remote Instrumentation Collaboration Environment (or RICE), which was conducted late last year at the [Ohio Supercomputer Center](#) in collaboration with scientists from the university's [Center for the Accelerated Maturation of Materials \(CAMM\)](#).

The CAMM engineers and their students used the Remote Instrumentation Collaboration Environment (or RICE) software to operate a microscope from different locations -- first, directly at the microscope, then elsewhere inside the laboratory, then at another location inside the same building. Finally, they operated the microscope from two miles away at the OSC offices on Ohio State's west campus in Columbus. Each test utilized a different kind of network setup; the test at OSC was performed over the public Internet.

RICE features a window that lists the names of researchers who are logged in, and another window for text messaging. A third window shows a video feed

of the object being studied, along with buttons to control the instrument. Users can transfer control of the instrument from one remote researcher to another in different locations.

In each test, the CAMM engineers were able to operate their microscope without incident. While they experienced some delays in performance when using RICE over the Internet, they still reported a high level of satisfaction with the software.

OSC eventually plans to make the RICE software code publicly available. In the meantime, Calyam and his colleagues (fellow Ohio State University students Mark Haffner, Nathan Howes, and Abdul Kalash) are continuing to test the software with other instruments in Ohio -- some located at the Department of Chemistry at Ohio State, the Electron Microscopy Facility at Miami University, and the Department of Physics and Astronomy at Ohio University.



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