

CASE STUDY

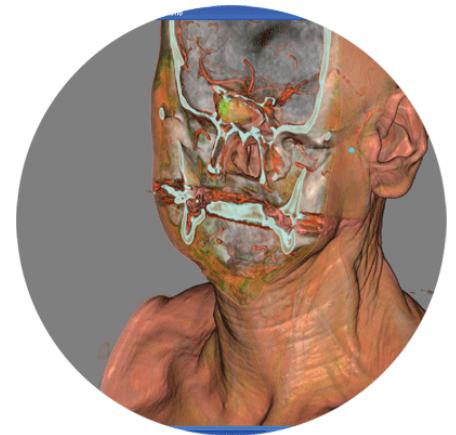
iAnatomy brings innovation to medical teaching

The Challenge

When the new Northern Ontario School of Medicine (NOSM) began accepting students, it looked for a solution to allow faculty and students to view and manipulate high-definition images of the human body in three-dimensional virtual space.

Background

Medical students now mostly learn anatomy from textbooks and they learn surgical skills as an apprentice to a trained surgeon or operating on real patients. That's not always possible or practical. Part of the challenge was addressing the school's policy against the use of cadavers in its medical teaching programs. For NOSM, the solution was to use the school's access to the ORION network, to partner with California's Stanford University School of Medicine to participate in the new 3-D iAnatomy project.



ORION and CANARIE Make a Difference

The school of medicine shares two campus locations, at Laurentian University in Sudbury and Lakehead University in Thunder Bay, a distance of 670 kilometres. The connection of the two locations over ORION enables the institutions to function as one, integrated facility.

Thanks to ORION, NOSM students are able to view and manipulate high-definition, three-dimensional anatomical representations from Stanford's vast collection of stereoscopic images of human anatomy. NOSM uses Dr. David Bassett's collection of images that he developed in the 1950s and 1960s in a process that involved cadaver dissections and photography.

The application uses propriety software developed by Stanford, sharing datasets over the ORION network, CANARIE and CENIC, California's advanced research and education network. Unlike a unicast of a standard video signal over the Internet, a multicast application makes use of the "spider web" of interconnecting points on multicast-enabled IP networks, like ORION, to allow a signal from a single point on the network to be multicast to multiple locations using the same bandwidth.

Results

The iAnatomy project helps consolidate all anatomical and surgical knowledge into one open, multi-media, interactive server to improve the way surgeons around the world are trained. With the aid of stereoscopic glasses, students are able to view hyper-realistic anatomy, and be able to participate in, and even lead, sessions involving multiple users in different locations over the network. The Stanford partnership is significant, not only for its educational benefit, but also because it further strengthens NOSM's reputation as a leader in remote and distance learning.

The Impact

"The process requires an advanced network with multicast capabilities and we would not be able to participate in this project without access to ORION."

- Mike Korolenko, eLearning Research & Development Specialist, NOSM