JASON LEIGH, PhD

Professor of Computer Science College of Engineering **Director, Electronic Visualization Laboratory (EVL) and the Software Technologies Research Center (STRC)**

Jason Leigh, PhD, grew up wanting to develop video games. "I was playing with computers at a very early age, learning to program them in ways well beyond anything taught in classes. This gave me an edge when I got to college. It wasn't simply a profession, it was my passion."

And as it turns out, even though video games are often thought of as frivolous, they are, in fact, not too different from the computer simulations that weather scientists, car manufacturers, and chemists use to forecast weather, design new cars, and develop new drugs.

When asked to describe his research, Dr. Leigh said, "My research area is data visualization—developing techniques to help people make sense of the mountains of data that they are increasingly becoming buried under because the Internet has made it so easy to collect and store data, regardless of whether it is useful or not."

One specific area of interest is the development of computer displays that help with data visualization. "When we were studying biology or physics in high school, we used instruments like microscopes and telescopes," he said. "Today, modern science records those types of images directly into the computer; in essence, the scientist never looks through those traditional optical microscopes and telescopes. The modern-day versions of those instruments are computer displays, like the one sitting on your desk. So my research is in developing better microscopes and telescopes to help people digest exponentially growing data."

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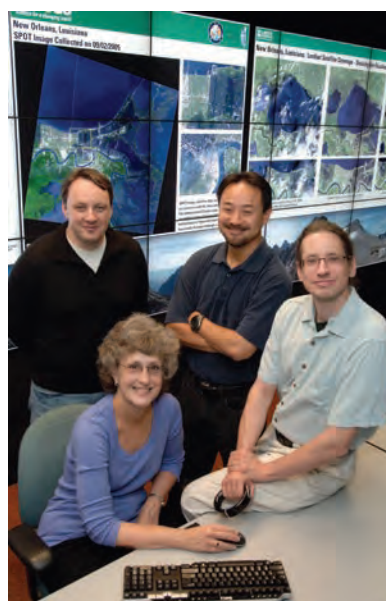
UIC Electronic Visualization Laboratory (EVL) director Jason Leigh, PhD (center); EVL associate director Maxine Brown, MS; EVL/computer science associate professor Andrew Johnson, PhD; and research professor Luc Renambot, PhD (far left) are among the many faculty, staff, and PhD, MS/MFA graduate, and undergraduate students who contribute to the success of EVL.

Dr. Leigh and his colleagues—lead investigator and computer science associate professor Andrew Johnson, PhD; EVL associate director Maxine Brown, MS; and EVL computer science adjunct assistant professor Tom Peterka, PhD — received a three-year National Science Foundation grant to help build the next generation (NG) CAVE.

"Experiencing the NG CAVE will be like stepping into the highest-resolution planetarium ever built," he said, "but of course you can see much more than stars. You can look at 3D molecules for those who are searching for drugs to cure cancer. You can look at geologic data if you are searching for oil or studying earthquakes and tsunamis. You can even look at complex financial-trend data so that you can better govern a city, state, or country. You can create virtual reality simulations that help train students, soldiers, doctors, fire fighters, and astronauts. You can even play video games never before imagined."

Dr. Leigh has also developed a novel way to achieve immortality—by creating a lifelike avatar of himself. Profiled on the *NOVA scienceNOW* episode "Can We Live Forever?," which aired in January 2011 on PBS, the show examined whether we can slow down the aging process. Dr. Leigh's Project LifeLike, which is pioneering avatar technology that will allow you to impart your wisdom, humor, and unique insight long after you are gone, was highlighted.

Andrew Johnson, PhD, associate professor of computer science and a member of the Electronic Visualization Lab, and Jason Leigh, PhD, professor of computer science and director, EVL, lead students in a discussion in the Cyber-Commons.

UIC students also find Dr. Leigh's work fascinating. "Students learn to develop video games; however, many go on to do much more. They develop visualization tools for Argonne National Laboratory, the Department of Homeland Security, or Pixar. They develop interactive exhibits for Adler Planetarium or the Science Museum of Minnesota."

Dr. Leigh chose UIC because "there is a lot of infrastructure here that would be difficult to get anywhere else. For example,

UIC has some of the best medical-imaging technology in the world. We are also one of the few campuses that has extraordinary network bandwidth on the order of 30 gigabits per second and will soon increase to 100 gigabits per second." He also finds that one of the great advantages to doing research in a university with so many diverse departments is that you can easily find collaborators. "It is an exciting time at UIC," he said.

> *Leigh's* Project LifeLike *pioneers avatar technology that will allow you to impart your wisdom, humor, and unique insight long after you are gone.*