

ILLINOIS STUDENT WINS \$30,000 AWARD FOR NEUROSCIENCE INNOVATIONS

Michael Callahan Wins the Inaugural Lemelson-Illinois Student Prize for Inventiveness and Innovation

URBANA, Ill. (February 21, 2007) – Michael Callahan possesses the ability to speak and share his thoughts and ideas with others. This ability to communicate serves as the motivation behind Callahan’s latest innovation. The 24-year-old winner of the first \$30,000 Lemelson-Illinois Student Prize hopes to give disabled people back the ability to speak for themselves.

Callahan, a graduate student in Systems and Entrepreneurial Engineering at the University of Illinois at Urbana-Champaign, received the prestigious award for a variety of innovative endeavors, including a device that turns unspoken thoughts into spoken words and a “mind-controlled” wheelchair.

“The goal of this award is to recognize the outstanding innovation and invention of the students at the University of Illinois,” said Andrew Singer, director of the Technology Entrepreneur Center in the College of Engineering. “The University has an extensive history of innovation, and Michael Callahan is a great example of the type of student we wish to honor with this award.”

Spoken Word

Callahan’s most recent invention is a device called the Audeo, which translates neurological signals into spoken words or commands for other devices, such as a motorized wheelchair.

“Prior technologies that allowed the disabled to communicate required physical movements like pressing a button or tracking head movements,” said Callahan. “The amount of movement required to use these devices makes them inaccessible to severely disabled people. Because our technology does not require physical movement it has created an opportunity to bypass the communicative behaviors imposed by physical disability.”

Leading a team of students and researchers, Callahan has begun to realize the potential of this technology. After a recent breakthrough, he and his team has shown the ability to produce fluent speech with 70 percent accuracy from the neurological signals. It is his hope that this innovation will restore communication for millions of disabled people.

“Michael Callahan's project to help individuals without speech and mobility communicate through the application of neuroscience is truly innovative and deserving of the Lemelson-Illinois Student Prize,” said Ray Almgren, National Instruments vice president of product marketing and academic relations. “Using our LabVIEW graphical system design platform, Michael was able to design an application that compares signals from the muscles in the neck and develop a fully functional wheelchair prototype that can

be controlled by a person's thoughts. National Instruments is excited to be a part of this project, and we wish Michael continued success.”

Ideas in Action

In December 2004, Callahan formed a partnership with the Rehabilitation Institute of Chicago (RIC), which has been ranked “Best Rehabilitation Hospital in America” by *U.S. News & World Report* for the past 15 years. Support from RIC has given him access to their large client base and allowed him to begin human subject testing.

In October 2005, Callahan started a company, Ambient, to commercialize this communication technology.

To promote innovation at the University of Illinois, Callahan is also working to bring resources to students interested in pursuing their ideas. He has been instrumental in creating a laboratory for students involved with the Technology Entrepreneur Center to develop their product ideas. Callahan is also working with Motorola to develop technology innovation for the impoverished people in India.

In addition to winning the Lemelson-Illinois Student Prize, Callahan has won the V. Dale Cozad Business Plan Competition (Social Division, 2006), and was awarded the Ben Jay Rosenthal Award (2005) which is given to the most promising technology entrepreneurship student in the College of Engineering.

About the Lemelson-Illinois Student Prize

The \$30,000 Lemelson-Illinois Student Prize is awarded to a student at the University of Illinois at Urbana-Champaign who has demonstrated remarkable inventiveness and innovation. A distinguished panel of Illinois alumni and friends including scientists, technologists, engineers and entrepreneurs chooses the winner.

The \$30,000 Lemelson-Illinois Student Prize is funded through a partnership with the Lemelson-MIT Program, which has awarded the \$30,000 Lemelson-MIT Student Prize to outstanding student inventors at MIT since 1995. (see: web.mit.edu/invent)

About the College of Engineering at the University of Illinois

The College of Engineering at Illinois is among the world’s most prestigious and largest engineering institutions, with undergraduate and graduate programs rated among the top five nationally. Approximately 5,000 undergraduates and more than 2,600 graduate students are divided with 12 specialized departments. The breadth and scope of research activities are enormous over \$170 million funding more than 1,900 projects by some 650 researchers and thousands of graduate and undergraduate students. In addition to long-standing leadership in traditional engineering specialties, they are pioneering new areas such as nanotechnology, bioengineering, trusted computer systems, novel materials, and much more.

About the University of Illinois

The University of Illinois at Urbana-Champaign has long ranked among the nation's most distinguished teaching and research institutions. Its diverse, world-class programs reflect the mission of a comprehensive, land-grant university. The largest public university in Illinois, the U. of I. campus was chartered by the state in 1867 as the Illinois Industrial University and opened its doors to students in 1868.

RPI and MIT Lemelson Prize Winners

Nathan Ball, a graduate student in mechanical engineering at the Massachusetts Institute of Technology, is the 2007 winner of the \$30,000 Lemelson-MIT Student Prize. Ball received the award for life-saving inventions including the ATLAS Powered Rope Ascender, a portable, battery-powered device that can lift a 250-pound load hundreds of feet into the air in a matter of seconds.

On February 16, the first recipient of the Lemelson-Rensselaer Student Prize at Rensselaer Polytechnic Institute will be announced by Lemelson Foundation chair Dorothy Lemelson, Rensselaer President Shirley Ann Jackson and Alan Cramb, dean of the School of Engineering. Details about the winner will be posted on www.rpi.edu/lemelson.

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For information about Michael Callahan's company and a demonstration of the technology, visit www.theaudeo.com.