Glove Could Improve One’s Sense of Touch

ABBY ROBINSON
RESEARCH NEWS AND PUBLICATIONS

A little vibration can be a good thing for people who need a sensitive touch.

Researchers at Georgia Tech have developed a glove with a special fingertip designed to improve the wearer’s sense of touch. Applying a small vibration to the side of the fingertip improves tactile sensitivity and motor performance, according to their results.

Previous research has shown that adding an appropriate amount of white noise — a concept called “stochastic resonance” — can improve sight, hearing, balance control and touch, but the white noise had not been incorporated into a wearable device. The Georgia Tech prototype is believed to be the first wearable stochastic resonance device, attaching to the fingertip to improve the sense of touch.

“This device may one day be used to assist individuals whose jobs require high-precision manual dexterity or those with medical conditions that reduce their sense of touch,” said Jun Ueda, an assistant professor in the School of Mechanical Engineering.

Ueda worked with Minoru Shinohara, an associate professor in the School of Applied Physiology, and visiting scholar Yuichi Kurita to design the device and test its capabilities on a small group of healthy individuals.

The device uses an actuator made of a stack of lead zirconate titanate layers to generate high-frequency vibration. The ceramic layers are piezoelectric, which means they vibrate when an electrical charge is applied to them. The actuator is attached to the side of the fingertip so that the palm-side of the finger remains free and the individual wearing the glove can continue to manipulate objects.

For this study, the researchers attached a little vibration can be a good thing for people who need a sensitive touch.

Tech Prepares for 2 Percent Budget Reduction

COMMUNICATIONS & MARKETING

In response to a directive from the Governor’s Office of Planning and Budget, the University System Board of Regents has directed all system institutions to develop and submit a plan for a 2 percent reduction in their state appropriations, both for the current fiscal year 2012 and the following fiscal year 2013.

While state revenue collections have been positive for the last 14 months, state officials remain cautious. Over the summer, state agencies — the University System of Georgia included — were requested to develop a plan to return 2 percent of their state appropriation for each of the next two budget cycles. For the University System, a 2 percent reduction equates to a cut of $34.8 million for FY 2012; of this, $4.2 million will come from Georgia Tech.

“Even though state revenues are expected to grow moderately, our biggest challenge, now and in the foreseeable future, is resources,” said President G. P. “Bud” Peterson. “The global recession continues to present challenges at the federal, state and local levels, impacting us here at Georgia Tech like everyone else.”

To accommodate the state’s request, Peterson said a portion of the state’s budget request for FY 2012 will be targeted toward reducing the university’s budget by 2 percent. An additional $5.6 million in budget cuts will come from a previously announced plan to reduce the university’s budget by 2 percent.

Campus Hosts Annual Student Career Fair

Last week, students lined up outside the Campus Recreation Center to attend the 2011 Georgia Tech Career Fair. This annual two-day event typically draws more than 5,000 students. Representatives from approximately 360 employers were in attendance at the 2011 fair, an increase of more than 10 percent from 2010. Companies were hiring for co-ops, internships and full-time positions.
Campus News

Family Weekend Isn’t Just for Students, Parents

You don’t have to have kids enrolled at Georgia Tech to get involved in this year’s Family Weekend events.

“Family Weekend is very much a Tech community event. There are many opportunities, especially on Friday, for faculty and staff to get involved,” said Kimberly Sterritt, director of the Parents Program.

“Attending a seminar or participating in a college/school reception is a great way to gain insight into what it’s like to be a student and to connect with students and their families.”

The goal of the weekend is to help families better understand the opportunities and experiences available to their students. However, another goal that Sterritt and her staff have for the weekend is to facilitate more interaction among students, parents, faculty and staff.

“This weekend is an opportunity to reconnect with many of the families of first-year students I met during FASET orientation,” said Dean of Students and Assistant Vice President for Student Affairs John Stein, who regularly participates in the event. “In speaking with them, I can get a sense of how their sons and daughters are adjusting to being at Tech.”

This year’s Family Weekend will be held on Sept. 23 and 24, and will include a series of presentations, panel discussions and demonstrations (held on Friday in the Global Learning Center) led by Tech faculty and staff members that focus on some of the following areas:

- Study abroad opportunities
- The Freshman Reading Project
- Student success strategies
- Managing growth on campus

Sue Ann Bidstrup Allen

Fall Brings Changes to College, School Lineups

With the new semester come some changes to the administrative lineups of Georgia Tech’s colleges and schools.

Joseph B. Hughes is stepping down as chair of the School of Civil and Environmental Engineering (CEE), effective Oct. 15.

Hughes, who has served as chair since 2003, will be returning to the faculty.

“We are all deeply grateful to him for his many years of extraordinary service to the school and the college,” said Gary May, dean of the College of Engineering.

Joseph B. Hughes

An interim chair of CEE will be appointed and a national search for a new chair will commence soon, May said.

Sue Ann Bidstrup Allen has been appointed the new associate dean for faculty development and scholarship in the College of Engineering.

Bidstrup Allen is a professor and the associate chair for strategic initiatives in the School of Chemical and Biomolecular Engineering.

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The device to 10 healthy adult volunteers who performed common sensory and motor skill tasks, including texture discrimination, two-point discrimination, single-point touch and grasp tests. The experimental results showed that the volunteers performed statistically better on all of the tasks when mechanical vibration was applied.

“All of the results showed that some mechanical vibration was better than none, but the level of vibration that statistically improved sensormotor functions varied by test,” Ueda said.

The researchers are currently conducting experiments to determine the optimal amplitude and frequency characteristics of vibration and the influence of long-term exposure to vibrations. The researchers are also working on optimizing the design of the glove and testing the effect of attaching actuators to both sides of the fingertip or fingernail.

http://tinyurl.com/3c3q6gr

Dean of Students John Stein poses with Buzz at a pre-game tailgate party during Family Weekend.

On Friday afternoon, various colleges and schools will also host receptions across campus, which faculty and staff are encouraged to attend. The receptions are an opportunity for parents to ask questions regarding specific programs, Sterritt added.

“Families enjoy meeting and talking to faculty and staff, and it’s a good opportunity to hear family members’ impressions of Tech and to answer their questions,” Stein added.

To learn more, email familyweekend@vps.gatech.edu.

www.familyweekend.gatech.edu

Steven W. Usselman

“Sue Ann has a deep understanding of academic excellence as well as faculty needs,” May said. “While research and education is critical to the success of our college, it’s also imperative that we focus equally on professional development of our faculty. She is ideally suited to fill this important role, which is focused to address the most pressing issues of one of our most important resources — our faculty.”

Professor Steven W. Usselman has been named the new chair of the School of History, Technology and Society in the Ivan Allen College of Liberal Arts.

“Usselman has been highly effective in recruitment, in program development and in advancing interdisciplinary education and research across the Institute, the academy and beyond,” said Jacqueline J. Royster, dean of Ivan Allen College. “We are extremely pleased that Steve will be shaping the future of HTS and that he will join the leadership team.”

Usselman will assume his new responsibilities in January 2012.

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Lighting Adjustments Lead to Energy Efficiency

GEORGIA TECH FACILITIES

Shutting off the lights when leaving a room and using more energy-efficient light bulbs are easy, but effective, ways to improve energy efficiency — especially at Tech.

“One of our goals was to ensure that lights in campus common areas weren’t on unless the room was occupied,” said Michael Leasure, assistant director of energy conservation. “But the solution wasn’t as simple as someone flipping a switch, even though the end result involves even less thought than turning off a light switch.”

Sometimes the light switch in the area wasn’t located at the entrance, so people couldn’t easily access it when coming and going. In some older campus buildings, lights were turned off and on by a breaker in a switch panel, so there was no light switch at all. Leasure added the solution was to install an automated option that turns lights on if someone enters the area and off whenever an area is vacant for 15 minutes, and keeps emergency exit lighting on at all times.

Facilities also decided to change the light bulbs used in some buildings. Instead of using four T-12 fluorescent bulbs, they are currently upgrading fixtures so they can use two T-8 fluorescent bulbs. This requires gutting the light fixtures, installing new sockets for the bulbs and changing out the electronics that connect to the lights.

“It’s amazing, but when we changed from the T-12 to T-8 bulbs, the light readings were almost identical before and after the change,” Leasure said.

The solution was to install automated lighting systems and fixtures is made possible through the American Recovery and Reinvestment Act (ARRA), which provided Tech with $2.7 million to improve the energy efficiency of lighting on campus.

About 35 buildings will receive the automated systems and 29 will get the updated fixtures. One stipulation of the ARRA funding was that only buildings located on portions of campus funded by the state were eligible for the improvements, which does not include buildings that house, for example, parking or athletics.

By using the automated lighting systems and new fixtures, Tech should save about $347,000 each year for the next four years. All of the work related to these upgrades should be complete by December.

Questions? Email Leasure at michael.leasure@facilities.gatech.edu.

http://tinyurl.com/3plmd5x

Clean Energy Speaker Series Begins Sept. 28

COMMUNICATIONS & MARKETING

Whether it’s natural gas or nuclear power, clean energy alternatives are a hot topic with everyone from legislators to small business owners.

“By creating and hosting the Clean Energy Speaker Series, Georgia Tech is providing a neutral, open forum where everything from national security and economic development issues related to energy can be discussed,” said Ben Hill, director of the Clean Energy Speaker Series program.

The series, which kicks off on Sept. 28 with a discussion on “Natural Gas: A Clean Energy Alternative,” is meant to provide an objective analysis of the Southeast’s energy and power requirements through 2030 and the role clean energy could play. All talks are free and open to anyone.

The monthly discussions will be held in the Hodges room of the Centers Building from 12:30 to 2 p.m. The Sept. 28 event will feature Don Haley, vice president of business development for Chevron Natural Gas, and David Wochner, counsel for Sutherland, as the speakers.

Here is more information about future dates and topics (speakers to be announced at a later date):

- Oct. 19: Natural Gas and Hydraulic Fracturing
- Nov. 16: Nuclear Power: Considerations Post-Fukushima
- Jan. 23: Clean Energy and Local Economic Development
- Feb. 29: Clean Energy and National Security
- March 28: Spotlight on and Impact of Emerging Technologies
- April 25: Series Recap — Connecting All the Dots

For more information, contact Hill at ben.hill@gatech.edu.

www.secleanenergy.gatech.edu

Take a Moment to Refresh FERPA Familiarity

If a parent contacted you about his student’s grades, would you know how to handle the situation?

“Student education records are protected under the Family Educational Rights and Privacy Act — known to most as FERPA,” said Georgia Tech Registrar Reta Pikowsky. “Taking a moment to familiarize yourself with this legislation can go a long way in helping you, and the Institute, avoid problems down the road.”

FERPA is a federal law that applies to all institutions that receive federal funding. To schedule FERPA training for your office, department, school or college, contact Pikowsky at reta.pikowsky@registrar.gatech.edu.

Also, more information is available at the following website: www.registrar.gatech.edu/students

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of the reduction will be managed centrally and the rest will have to be absorbed by the student and unit levels. “Through careful planning and the additional revenue realized through tuition, Georgia Tech is still capable of meeting its core responsibilities,” Peterson said.

“We believe we can continue to preserve and enhance our instructional activities, address critical academic issues such as the faculty-student ratio and course availability, and continue to support our research and service missions,” Peterson said. “Over the course of the past several years, we have been able to hire a new faculty to ensure the quality of our academic and research programs and partially accommodate our enrollment growth. We are continuing to work to address retention and compression issues. While I fully recognize that we have not been able to give merit raises for the past four years, we are working to resolve this as quickly as we can, given the current economic pressures.”

Peterson also expressed his appreciation for the support of the Georgia Tech community. “I continue to be impressed with the tremendous dedication and support of the people of Georgia Tech. These are difficult times and by pulling together, we can and will continue to provide the very best educational opportunities for our students and effectively serve the state of Georgia.”
Laura Bier

Amelia Pavlik, Communications & Marketing

It all started with a copy of “Ali Baba and the Forty Thieves.”

“I was given a copy of the book when I was a child, and I think that sparked my fascination with the Middle East,” said Laura Bier, an assistant professor in the School of History, Technology and Society. “Not to mention, when I was growing up, something was always happening in the Middle East including events like the oil boycott by OPEC in 1973 or the Iranian revolution.”

A year of studying abroad in Egypt only increased her interest in the area. Bier went on to earn both a master’s and PhD in history and Middle East studies, opting to focus on the history of the modern Middle East, with a specialty in modern Egypt and the history of Middle Eastern women.

One of her current projects is on a biography of an iconic Egyptian belly dancer and movie star, Tahia Karioka, whose life spans much of the twentieth century. “She had amazing life experiences, including being imprisoned several times for political activism and being married 14 times,” Bier said. “I’m interested in what her life has to tell us about modern Egyptian history.”

Recently, The Whistle had an opportunity to learn more about Bier and her time at Tech.

How did you end up at Georgia Tech?

Tech is my first teaching gig. I started in 2005, fresh out of graduate school at New York University.

What is the greatest challenge you face associated with teaching, and how have you dealt with it?

One of the challenges is that in any given classroom I have people with widely varying experiences with and levels of knowledge with the Middle East. Some students have almost no experience with this part of the world, and others may be Middle Eastern or have spent time travelling there. I aim to create opportunities for students to learn from each other — putting those with no experience together with others who have more familiarity and getting them all to understand that dealing with the region as scholars and historians puts everyone on the same page. Everyone can read the same historical sources and formulate an opinion about them.

What do you do to make learning more engaging for students?

I bring in a lot of Middle Eastern voices, in the form of memoris and documentaries. I also try and relate the subject material to their lives or put issues in terms they can relate to. Finally, I try and show them that history is a full contact sport — there are disagreements in interpretations and history is political. So, I encourage them to think of themselves as historians engaged in a process of historical interpretation.

What piece of technology could you not live without as an instructor?

YouTube.

Best place to grab lunch?

Mostly, I eat at my desk, but I was thrilled when Zaya came to the student Center — their falafel is divine.

Tell me something unusual about yourself.

Name a few books you are reading.

Fiction is my guilty pleasure. Right now I’m reading “This is a Human Chain” by Barbara Kingsolver. For work, I’m reading a biography of a woman who owned a nightclub in Egypt in the early twentieth century.

If you weren’t in your current line of work, what would you be doing?

Writing mystery novels or about food.

McKnight, Chair of Modern Languages, Dies at 69

Rebecca Keane

Ivan Allen College

Phil McKnight, 69, professor and chair of the School of Modern Languages at the Ivan Allen College of Liberal Arts, died unexpectedly of unknown causes during the Labor Day holiday.

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