New sensor detects direction of sound under water

Abby Vogel
Research News

A new sensor that measures the motion created by sound waves under water could allow the U.S. Navy to develop compact arrays to detect the presence of enemy submarines. These new arrays would detect quiet underwater targets, while also providing unambiguous directional information.

The sensor uses a mechanism inspired by the fish ear, which contains thousands of tiny hairs that move when a sound wave passes through the fish. These hairs then communicate with nerves, allowing fish to hear under water. Because fish excel at detecting sound so they don’t get eaten, the Georgia Tech researchers chose the fish hearing system as their model.

In the field of underwater acoustics, there is always a need to develop more sophisticated sensors, researchers said. The Navy currently tows long lines of hydrophones to listen to sound under water — much like a microphone listens to sound in the air. But directional ambiguity exists. A line array of hydrophones cannot tell if the sound is coming from the left or right.

Guillot and his collaborators — Principal Research Scientist David Trivett and Professor Peter Rogers — have developed a more compact, more sensitive sound detector that like a microphone listens to sound in the air.

**Sensor continued, page 3**

Tech Promise provides debt-free education to low income students

Lisa Grovenstein
Institute Communications and Public Affairs

Georgia Tech has launched a new program designed to help Georgia students whose families have an annual income of less than $30,000 earn their college degree debt-free. Known as the Tech Promise, it is the first program of its kind offered by any public university in the state of Georgia.

Picking up where Georgia’s HOPE scholarship and other financial aid options leave off, the Tech Promise program will be tailored for each applicant. Assistance will include scholarships, grants, and job opportunities that will allow students to attend Georgia Tech without the burden of student loan debt. The program will be offered to all currently enrolled students and incoming freshmen for fall semester 2007 who meet eligibility requirements.

The Tech Promise program is expected to make a Georgia Tech education accessible to hundreds of qualified, economically disadvantaged students. Funding for the program will come from private philanthropy and is expected to require $2 million during the first year of implementation.

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**Tech Promise continued, page 2**

Crime police join city’s new Crime Stoppers unit

Michael Stageart
Institute Communications and Public Affairs

A new interagency police program in metro Atlanta plans to employ its citizens in helping to clear some of the city’s unsolved crimes, using cash incentives and the promise of anonymity.

The Georgia Tech Police Department (GTPD) is one of several partners in Crime Stoppers Atlanta — a tip line that enables citizens to provide information to the police without giving an identity. Until last week, Atlanta was the only major city in the country without such a program.

Atlanta Police Chief Richard Pennington noted that Crime Stoppers has a proven track record as an effective tool for law enforcement.

“Crime Stoppers has a proven track record as an effective tool for law enforcement. This is a program whose overall goal is to make and immediate impact on safety an security as well as a cumulative impact in the reduction of crime,” he said.

The program is based on a formula established 30 years ago: individuals who call the tip line are given a reference number that can be used to track the progress of a case. If the information leads to an arrest and indictment, the person is eligible for a reward.

Twelve business and community leaders will comprise an advisory council to monitor effectiveness and determine compensation. Rewards are capped at $2,000, and tipsters remain anonymous throughout the investigation and prosecution of the crime.

**Crime Stoppers continued, page 2**
New endowed chairs raise profile in management and engineering

Dan Treadway
Institute Communications and Public Affairs

The visibility and stature of an appointment to an endowed chair is one of the highest forms of recognition that can be accorded to a university faculty member. Chair holders draw highly talented students to the program, attract junior and senior faculty as colleagues, stimulate innovative research, and leverage external funding.

Georgia Tech’s effort to advance the prestige of the faculty—and consequently, the institute—through the creation of new endowed faculty chairs took a giant step forward recently with commitments to fund two new chairs in the College of Management and one in the School of Civil and Environmental Engineering. The three new endowed chairs will be established, pending approval of the Board of Regents.

Cecil B. Day Chair in Business Ethics

To prepare for a globally competitive business environment where the pressure to succeed reaches dizzying heights, a solid education in business ethics has never been more important.

Thanks to a recent commitment from the family of legendary business leader Cecil B. Day Sr., Tech students and faculty will have the benefit of a leading scholar in the field of business ethics. The family’s commitment will establish the Cecil B. Day Chair in Business Ethics in the College of Management. The Day Chair is intended to attract and/or retain an eminent teacher-scholar involved as a leader in Georgia Tech’s education, research and outreach initiatives in the area of business ethics.

Founder of Days Inns of America, Day was an accomplished and respected entrepreneur at the time of his death in 1978. “Cecil Day exhibited a life of integrity, both in what he believed and how he lived,” said Steve Salbu, dean of the College of Management. “At the foundation of his business practices was his desire to be a faithful steward and to treat people fairly and honestly. What better example could there be for Management students and other Tech students to have? We appreciate the legacy Cecil Day has left for us, and we are grateful to Mrs. Sanders for sharing that legacy so generously.”

A loyal graduate of Georgia Tech, Day highly valued the education he received from the Institute. He was a strong proponent of public education, seeing it as the prime arena for the discussion of issues affecting the nation and as a source of creative and innovative training of future business leaders.

Russell and Nancy McDonough Chair in Finance

The College of Management is also the beneficiary of a generous commitment from Russell B. McDonough Jr., and his wife Nancy in honor of George Griffin, who served as dean of students from 1946-1964.

The McDonoughs felt they wanted to give something back, and the remarkable progress of the College of Management attracted their attention. Dean Salbu’s vision and plans for the College, and for the MBA program in particular, were exciting to the couple.

“As editor-in-chief of the Technique, I was afforded the opportunity to work with Dean Griffin, who was highly respected, effective, and beloved,” said McDonough, who attended Georgia Tech on an ROTC scholarship. “I feel that my acceptance at Harvard was greatly helped by Dean Griffin’s having picked me as one of the top 10 seniors at Georgia Tech in 1956 and by the great letter of recommendation he wrote for me. That is not the only MBA at Harvard, the only graduate school to which I applied, it is unlikely that the series of events in my business career that led to our being in a position to fund this chair would have occurred. Thus, in a very real sense, Dean Griffin deserves to be so honored.”

Howard T. Tellepsen Chair in Civil and Environmental Engineering

Howard T. Tellepsen Jr., has truly gotten into the spirit of Tech giving in recognition of his 40+ class reunion this fall.

Not only did Tellepsen make commitments toward the Class of 2006 President’s Scholarship Endowment and an Alexander-Tharpe Fund Life Membership, but he also made a commitment to establish the Howard T. Tellepsen Endowed Chair in the School of Civil and Environmental Engineering. The Tellepsen Chair will be awarded to an individual who demonstrates commitment to students, values education, has a strong record of recognized scholarly achievement and is dedicated to serving others.

“At a university like Georgia Tech, you’ve always got the first some of the greatest minds in the country, and even the world, on the faculty,” said Tellepsen, who graduated in 1966. “To give real meaning and value to that high quality, I believe you also have to have a strong commitment of service, both to Georgia Tech and to its students. I want the Tellepsen Chair to attract an outstanding leader in civil and environmental engineering who also embraces the service role that is so important for faculty leaders. I have every confidence that our School of Civil and Environmental Engineering will recruit such a leader.”

Tellepsen established the endowed chair also to honor his father, the late Howard T. Tellepsen Sr., who received Tech’s Alumni Distinguished Service Award in 1952 and was a trustee emeritus of the Georgia Tech Foundation. Tellepsen has followed his father’s example of service to his alma mater through membership on the Georgia Tech Foundation Board of Trustees since 2003.

During the annual meeting of the Georgia Tech Foundation Board in October 2006, Howard T. Tellepsen Jr., announced the endowment of three new endowed chairs, the Cecil B. Day Chair in Business Ethics, the Russell and Nancy McDonough Chair in Finance, and the Howard T. Tellepsen Chair in Civil and Environmental Engineering.

Crime Stoppers Atlanta

Crime Stoppers Atlanta

For more information...

www.crimestoppersatlanta.org

404-577-TIPS

Crime Stoppers, cont’d from page 1

case.

Crime Stoppers Atlanta will be funded for three years through the Atlanta Police Foundation, a nonprofit agency that works with police departments to implement programs in the interest of public safety and preparedness. Crime Stoppers is one of six programs it is initiating in its Campaign for a Safer City.

The Georgia Tech Police Department has already made a commitment of several computers for use in the call center. GTPD employees will also provide administrative support by staffing the call center for a few shifts per week. Other law enforcement representatives participating in Crime Stoppers include Fulton and DeKalb counties, Georgia State University, Morehouse College, Clark Atlanta University, NARPA and the World Congress Center.

Georgia Tech Police Chief Teresa Crocker is familiar with Crime Stoppers, having participated in the program when she worked at East Carolina University in Greenville, North Carolina. She sees it as a useful tool for law enforcement.

“I know it will be successful in the long run,” she said, “but I’m curious to see the kind of immediate impact it will have.”
GT/Emory collaboration yields improved critical care facility

Matt Nagel
Institute Communications and Public Affairs

Georgia Tech and Emory University have combined their expertise in the medical and architectural research fields to create a world-class neuron intensive care unit (ICU) at Emory Hospital. College of Architecture Professor Craig Zimring and his team of researchers worked with the Neuro Critical Care medical director Owen Samuels to look at several elements to make sure their design fit both the hospital and patient needs.

"This was a wonderful exercise in evidence-based design. We explored the research linking design to quality and safety outcomes and reviewed past prize winners of Society of Critical Care Design competitions for exemplary models," said Zimring. "Then we spent several days watching how Emory healthcare professionals did their work and what problems they faced in the current space they were using. We also spoke to families to see what kinds of things they wanted or needed during their extended stay with their loved ones in the hospital."

Researchers worked closely with hospital staff to make sure their design would encompass what the ICU needed. Everyone from the president of the hospital to food service employees provided input. The research team also listened to concerns from those in charge of infection control to nurse practitioners as well as doctors and other decision makers.

The research showed that current facilities were smaller than the national trend for new hospitals. In addition, existing rooms lacked natural light, and there was minimal space for the patient's family.

The new ICU rooms will be much larger, which includes more space for family members visiting their loved ones, including the opportunity for families to spend the night in an ICU for the first time in Emory's history. The new design also includes more natural light in each room, a small change that research suggests is key for the patient recovery process.

The state-of-the-art facility is based on two overarching goals: to create an environment that facilitates teamwork among staff members and to be family- and patient-centered.

"We could show that increased natural light reduced pain and reduced drug use," said Zimring. "Our design also provided better working conditions for staff, which our research shows should reduce turnover. That is what the power of evidence does for us. It shows us how to build a better facility."

Through the process of collaborating with Dr. Samuels, his staff and families of patients, the team was able to set some specific goals for their design.

"Emory's staff wanted an environment that is fundamentally about teamwork among staff members and at the same time is family and patient centered," Zimring said. "We tried to create a physical facility that would give them a tool to achieve those goals."

The new neuro ICU will consist of 20 new, state-of-the-art patient care rooms that will allow for centralization of the most critical medical services for patients suffering from severe neurological traumas.

"Our design used the physical environment as a tool to support families, patients and staff by providing improved communication, reducing stress and reducing errors," said Zimring. "I think it represents a remarkable cooperation between Georgia Tech and Emory."

Alumni pubs go digital

The Georgia Tech Alumni Association is experimenting with a new way to present its award-winning magazine in a digital format.

The experience is similar to thumbing through a real periodical. Visitors to the Alumni Web site who select the Georgia Tech Alumni Magazine will find a toolbar at the top of the page, allowing them to click for a thumbnail glance at the publication, go to the contents page and click on a headline and immediately go to the related article.

The digital publication is not replacing the printed edition of the Georgia Tech Alumni Magazine, which will continue to be mailed to Roll Call donors. A digital version of Tech Topics will be online later this month with the publication of the print edition.

Glee Club performs in Hawaii

For the second time in as many years, the Georgia Tech Glee Club traveled to Honolulu in January to serve as the Ensemble-in-Residence at the Hawaii International Conference of Arts and Humanities. This conference attracted more than 1,000 academicians from more than 40 countries worldwide.

The Glee Club presented a feature concert on Saturday, Jan. 15 to a capacity audience who offered the group a standing ovation.

The Glee Club also presented an informal exchange workshop/clinic session with two choirs from the University of Hawaii-Manoa and their director, Dr. Esther Yoo. On Sunday morning, the 24 members of the group sang for two services at First Presbyterian Church of Honolulu, where alumnus Reverend Slim Fulcher is associate pastor.

GT Scholarships

Is your child a Georgia Tech student? If so, the Georgia Tech Faculty Women's Club may be able to help with tuition expenses. The Faculty Women’s Club offers scholarships to undergraduates whose parents are Georgia Tech employees. Scholarships range from $500 to $1,500 and are based on financial need and academic achievement. Completed applications must be received before March 7. To receive an application form, e-mail Karin Flattet at gfwchs@earthlink.net or visit www.gtfwcs.gatech.edu.

Call for abstracts

Graduate students across the country are invited to attend the Georgia Tech Graduate Technical Symposium, also known as GT! (GT-squared), hosted by the Georgia Tech Black Graduate Student Association (BGSA). The objective of the Symposium is to provide a forum for exceptional undergraduate and graduate students to communicate advances in their research to both corporate and university representatives, as well as network with students from across the country. The Symposium is scheduled for March 15-16, with the theme "Merging Multiculturalism and Multidisciplinary Research."

To submit a research abstract or register for the event, visit www.bgsts.gatech.edu/gt2.