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THE WHISTLE

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THE GEORGIA INSTITUTE OF TECHNOLOGY

GTRI announces research collaboration with Ireland

Megan McRaney
 Institute Communications
 and Public Affairs

The Georgia Tech Research Institute (GTRI) will establish a research enterprise in Athlone, Ireland to focus on industry research and development needs. GTRI Ireland will be GTRI's first applied research facility outside the United States. Over the next five years, the Irish operation plans to build up a portfolio of research programs and collaborations with industry valued in excess of \$25 million.

GTRI will receive support from IDA Ireland, the agency responsible for industrial development and overseas investment in Ireland. The new institute will focus on four technology areas that mirror Ireland's research strengths — digital media, radio frequency identification (RFID), biotechnology and energy.

"Ireland is increasingly known as a world leader in innovation and for embracing technology," President Wayne Clough said. "As Georgia Tech expands its global horizons, we seek partners who share our values and goals. Thus, we are especially pleased to celebrate the formation of this forward-looking collaboration with Ireland and our Georgia Tech Research Institute. We are grateful to the government and civic leaders of

Ireland who worked on this exciting initiative with us."

The institute will work closely with Irish corporations and universities, the Georgia Tech research community and U.S. companies to provide companies on both sides of the Atlantic with industry-focused research and development that bridges the gap between academic discovery and commercial success.

Ireland's Minister for Enterprise, Trade and Employment Micheál Martin, in announcing this joint initiative, said, "Applied research institutes specialize in translational research — the integration of technologies to prove feasibility — where ideas can be proven to have commercial potential. GTRI Ireland will provide this capability and will work across multiple disciplines and in partnership with industry to bring new technological solutions to address the industry and market needs of companies in Ireland."

GTRI Director Stephen Cross noted, "GTRI Ireland is an integral part of GTRI's plan to develop international operations and build long-term relationships with industrial partners by providing innovative solutions through customer-focused R&D. This initiative directly supports Georgia Tech's vision to define the

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Krish Ahuja, a Regents' researcher and the head of GTRI's Aerospace and Acoustics Technologies division; Sean Dorgan, CEO of IDA Ireland; Stephen Cross, GTRI director; Micheál Martin, Ireland's minister for Enterprise, Trade and Employment; and David Parekh, associate vice provost for research and GTRI deputy director.

Jesse Hill receives Ivan Allen Prize



Photo by Stanley Leary

Dean Sue Rosser of Ivan Allen College and Vice Provost Anderson Smith present the 2006 Ivan Allen Jr. Prize for Progress and Service to Atlanta businessman and civil rights leader Jesse Hill Jr. at Ivan Allen College's Founder's Day celebration. During his keynote address, "Leadership and Partnership: Ivan Allen Jr. — Jesse Hill Jr. and Atlanta's Ascent," Hill described high points in his close working relationships with Allen, former Tech President Joseph Pettit, alumnus Larry Gellerstedt and other Atlanta leaders in both the black and white communities.

Tech senior named to roster of academic all-stars

Jarret Lafleur, a fourth-year aerospace engineering major and a President's Scholar, has been named to USA Today's 2006 College Academic All-Stars first team.

Students applying for this distinction were asked to write an essay about their "greatest intellectual endeavor," Lafleur said. He chose to submit his conceptual design for Daedalon, a morphing wings spacecraft for navigation on Mars.

"The concept was that you would enter (Mars' atmosphere) as a blunt body arrow shell and that arrow shell would transform into wings, which could change shape as you got to a lower speed. You could presumably morph your wings into a low-speed configuration as you slow down," he said.

Lafleur worked on the project for the NASA Institute for Advanced Concepts in 2003-04. As a co-op student, he has worked with the Johnson Space Center for three semesters, spending two semesters in

Houston working on mission operations and design for an orbital space plane, and one at a testing facility in New Mexico.

Currently, Lafleur is researching what type of propulsion is needed to slow down a large spacecraft trying to land on Mars. That's a difficult problem because the Martian atmosphere is very thin and doesn't slow down a spacecraft as much as it would on Earth.

"We were finding that if you have this 100-ton payload entering the atmosphere and just let it fall, without any propulsion to help slow it down, you'd hit the ground at Mach 2 or 3," he said. "My part of the project is studying what type of propulsion would be required, whether you could use propulsion alone, or with a parachute."

Originally from Rhode Island, Lafleur was attracted to Tech's top-flight aerospace engineering program.

Lafleur continued, page 3

QUOTE
UNQUOTE

"We're pretty sure it's at least 7 percent of the Internet. Typical numbers range around 75 million to 100 million machines that are currently conscripted."

—Merrick Furst, a professor in the College of Computing, on the widespread problem of bot networks, or bot nets, which are being used to disrupt Internet traffic. (ABC-TV)

Network security company wins business plan competition

Students, alumni show entrepreneurial spirit

Brad Dixon
College of Management

Companies' high-speed computer networks could soon be much safer from attack, thanks to technology developed by Intrinsic Security, winner of Georgia Tech College of Management's 2006 Business Plan Competition.

Most security products in use today only sample a small fraction of the data streaming across high-speed networks, explains MBA student Aldor Delp, CEO of Intrinsic Security. But his company has developed an efficient means of examining every single bit of data so that no attacks, including network-vulnerability scans and worms, slip past the system.

"It's a totally different way of looking at security," says Delp, noting that previous methods of examining all network data have proven too cost-and-time prohibitive to implement. "Our company provides the first proven solution for network monitoring at speeds over one gigabit per second, which allows for a nearly 100-percent accurate, real-time response to threats and significantly

lower hardware requirements than anything else currently on the market."

Delp shared the \$10,000 prize for best overall business plan with fellow MBA students Robert Henebry and Jozef Purdes; Chris Clark, a doctoral student in electrical and computer engineering at Tech; and Abhishek Kumar, who earned his doctorate in computer science in December.

Intrinsic Security also edged out the competition's four other finalists to win the Most Fundable prize (a package of legal, financial and other services), which goes to the team considered most ready to enter the marketplace by the judges.

The Business Plan Competition, started in 2001 and open to all Georgia Tech students and alumni who've graduated within the past five years, is intended primarily as an educational exercise, but it often leads to the creation of real technology-based businesses.

All of Intrinsic Security's officers plan to commit themselves fully to the company after graduation and hope to bring their product to market by the fall. They're marketing their innovation, which is now in beta-testing on the Georgia Tech network, to large companies with high-speed networks.

Intrinsic Security grew out of the Technological Innovation: Generating Economic Results (TI:GER) program — a partnership between Georgia Tech and Emory Law School that joins science and engineering students with MBA, economics and law students, who collaborate on projects while learning how to move technologies from the lab to the marketplace.

Other teams honored

Two other TI:GER teams placed second and third in the overall Business Plan Competition. EvIslet (pronounced "e-violet"), a research-and-development company for medical devices, won \$3,000 for its plan to market an innovation improving the success of islet-cell transplantations used to treat diabetes.

Third-place winner PolyDerm Delivery Systems claimed \$2,000 for its plan for a drug-delivery skin patch employing polymer microneedle technology. The company also won two \$500 prizes given for the first time this year: the Sustainability Award, given to the plan that best addresses environmental concerns and/or demonstrates social responsibility; and the Showstopper Award, honoring the team that did the best job selling itself to judges in a tradeshow held the night before.

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Tech support: GTRI software helps centralize aircraft maintenance

T.J. Becker
Research News

Aircraft technicians these days are as likely to use a laptop as a printed manual and logbook, and to turn to the Internet for the latest job-status reports and technical information.

Engineers from the Georgia Tech Research Institute (GTRI) are assisting them, using current computer and database technology to help military aircraft maintainers get their work done more efficiently. A team from GTRI's Electro-Optical Systems Laboratory (EOSL) has been developing and improving maintenance software for the U.S. Navy since 2000.

Called the Maintainer's Electronic Performance Support System (MEPSS), this software was initially developed for the Navy's patrol aircraft. A more recent version is now helping maintain an unmanned aerial vehicle, and portions of the GTRI software are being used in other aircraft maintenance programs.

"The idea is to give maintainers all the information tools and decision-making capabilities that they need," said Gisele Bennett, director of EOSL and principal investigator for the project. "From a simplified standpoint, you can almost look at it as an information portal, where you're collecting and disseminating information to the maintainers."

MEPSS is typically installed on a

laptop computer. Technicians can check parts lists, consult manuals and add information about their work as they go. A Web-enabled system gives maintainers access to up-to-the-minute technical and parts information, and helps them both access and share work-related information.

The software performs a needed centralizing function, Bennett says. For example, by reviewing software reports maintainers can detect trends involving, say, troublesome parts that need multiple replacements. Or they can pinpoint repair techniques that need improvement.

"The maintainer can look up all kinds of information about how to repair a system, document what they did, document any problems and add any helpful hints that they need to share," Bennett said. "It's a collaborative tool that lets them share information with other maintainers and between squadrons."

Keesah Hall, an EOSL research scientist, says that researchers spent considerable time watching how maintainers performed their work.

"We made sure they were integral in the design process," she said. "It was designed for them specifically, to help them with the tasks that they complete every day."

Trouble-shooting tips are among the most important capabilities the system offers, Hall believes. When GTRI researchers interviewed



Researchers Gisele Bennett (left) and Keesah Hall show the features of the Maintainer's Electronic Performance Support System (MEPSS). The system is used to help maintain two key U.S. Navy aircraft.

maintainers, they learned that knotty maintenance problems can sometimes take a week or more to solve.

"When we were designing the system, we asked, 'How can we help them save money and time by documenting these kinds of issues?'" Hall said. "Now the system lets them keep track of things that are not easy to figure out."

For more information...

Logistics and Maintenance
Research Center
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Mood affects young and old differently, study finds

David Terraso
Institute Communications
and Public Affairs

New research from Georgia Tech suggests the effect of mood on how people process information changes greatly as they age. The study offers a window into the changing nature of the aging mind and the way it handles emotion and information.

Researchers from Tech's School of Psychology's Adult Development lab examined how younger and older adults who were induced into a positive or negative mood interpreted the actions of others. They found that older adults in a negative mood were more likely than younger adults to attribute the actions of an individual to that person alone, rather than considering that situational factors may be affecting their actions. This correspondence bias suggests that, when in a negative mood, older adults are more internally focused on maintaining an emotionally satisfying experience and thus have difficulty processing external information.

"It may be the case that older adults in a negative mood state are more motivated to downgrade their negative emotions and not allocate enough processing time to focus on the details of the situation. So this needs to be taken into consideration when imparting information to older adults," said Fredda Blanchard-Fields, a professor in the School of Psychology.

One situation where this knowledge might be useful is when a doctor has to tell a patient they have a serious illness.

"You want to give them time to deal with the fact that they have the illness, to deal with the emotions before you have them make a decision on how to treat it," she said.

That's very different from the way young

people handle information. When in a negative mood, the study found young adults were more likely to consider situational factors when assessing an individual's behavior. Younger adults may not have the same motivational tendencies and thus can tolerate negative emotions more easily and focus on the details of the task, suggesting they are more externally focused when in a negative mood.

Researchers recruited young adults between 18-28 years of age and older adults whose ages ranged between 59-80 years.

These findings seem to support other research suggesting that as people age, they become more interested in regulating their emotions and eliminating negativity.

"Older adults may be captured by the negativity and, therefore, focus attention on emotion regulation," said Blanchard-Fields. "Therefore, they focus attention on emotion regulation rather than focusing attention on the details that they need to internalize. So it's a dual task for them."

When positive moods were induced, the roles were reversed. This time, the younger adults were more likely to be less focused and exhibit the correspondence bias.

"Here we see that younger people tend to become more lax and lose focus; whereas, older people are more likely to focus on the task they are completing," said Andy Mienaltowski, graduate researcher and lead author of the study.

"So it shows that the young and old are motivated by different goals and, therefore, perceive and process information differently because of the changes in goals across the lifespan," said Blanchard-Fields.

The next study for the research team will be comparing the effects of negative mood on cognition in younger and older adults. The latest study appears in the journal *Psychology and Aging*.

Ireland, cont'd from page 1

technological university of the 21st century."

To take full advantage of Ireland and GTRI's research strengths, GTRI Ireland will focus on several research areas.

GTRI Ireland's Athlone location leaves it well situated for collaborative research with a broad range of companies and universities throughout the country. Located along the Shannon River, the city is between Dublin on the east coast and Galway on the west coast. Major international

corporations such as Elan Pharmaceuticals and Ericsson have headquarters in Athlone.

GTRI Deputy Director David Parekh will have primary responsibility for developing GTRI Ireland strategy, establishing corporate alliances and selecting the right talent to ensure this endeavor is successful. He commended IDA for its commitment to innovation and effectiveness in supporting initiatives through a world-class staff of professionals in Ireland and the United States. In describing this partnership, he remarked, "Ireland has the resources of a nation and the agility of a start-up."

Lafleur, cont'd from page 1

But that wasn't all. Lafleur has played flute and piccolo for the marching, concert and symphonic bands, the flute choir and the chamber winds ensemble. About his decision to attend Tech, he said, "I knew I could keep up with music while I was here and I could get the strong aerospace background that I wanted. Those were probably the biggest draws."

"Jarret is one of the rising stars in our aerospace engineering program. He is extremely talented academically and is a credit to our school," said John Olds, associate professor of aerospace engineering. "He is very deserving of the honor."

Lafleur plans to attend graduate school and pursue his doctorate. He is not certain where graduate school will take him but "Georgia Tech



Jarret Lafleur said Tech's two biggest draws were its aerospace engineering and music programs.

is certainly up there in the running," he said.

Concerning his career aspirations, Lafleur said, "I certainly want to do space types of engineering. And I prefer to focus on human space flight and all the new exploration initiatives such as going to the moon and Mars."

IN BRIEF:

Alumni offers podcasts

Podcasting, the technology that enables audio downloads on the Internet, now allows anyone to tune into Georgia Tech events wherever and whenever it's convenient.

In January, the Georgia Tech Alumni Association introduced JacketCast, a podcasting service that will provide audio downloads of alumni events, faculty lectures, college events, campus arts and more.

"Adding podcasting to our online services helps put us in touch with people outside of the metro-Atlanta area who might not be able to attend a local Tech event, but are still interested in hearing what's going on," said Lora Magnuson, director of Alumni Web services.

"Recent research indicates that more than 6 million Americans have listened to podcasts. And chances are, as portable listening device sales increase, so will podcast usage. Our new JacketCast service will feature Tech events, lectures, musical performances and interviews."

Convenience is the biggest factor in podcasting's success, as it only takes minutes to download to a computer or MP3 player.

The JacketCast Web site is located at www.gtalumni.org/jacketcast.

Sophomore qualifies for NCAA diving championships

With a sixth-place finish on the men's platform at the NCAA Zone B Diving Championships on March 12, sophomore Evan Stowers became the first Tech diver to qualify for the NCAA Swimming and Diving Championships.

The top three from each event make the NCAA meet. Stowers made the meet by virtue of the divers in front of him already qualifying on the one- or three-meter springboard competitions.

Tech will host the 2006 Men's NCAA Swimming and Diving Championships in the Georgia Tech Aquatic Center, March 23-25.

Student Center central staircase to be upgraded

People who have renovated their homes will feel right at home in the Student Center during the next several weeks as the Student Center central staircase is upgraded.

The decision was made to begin the renovation during Spring Break (Mar. 20-24) in order to disturb as few people as possible, but construction will continue for several weeks beyond Spring Break.

Signs will be placed directing people to alternative pathways during construction.

"We'll keep the travel pattern changes to a minimum," said Rich Steele, director of the Student Center.

"We want everyone to think of the Student Center as their home and right now their home needs renovating."

More details on the Student Center construction is available at www.importantstuff.gatech.edu.

Summer Camp at the CRC

Late registration for teCh wReCk day camp begins March 27. Summer camp is only open to the immediate family of faculty, staff and students.

Complete details are available at www.crc.gatech.edu/sps/summercamp or by calling 894-8838.