

GTRI Insider

November 2005

Getting Their Hands Dirty

Students and Interns Working Alongside GTRI Researchers Gain Real World Experience

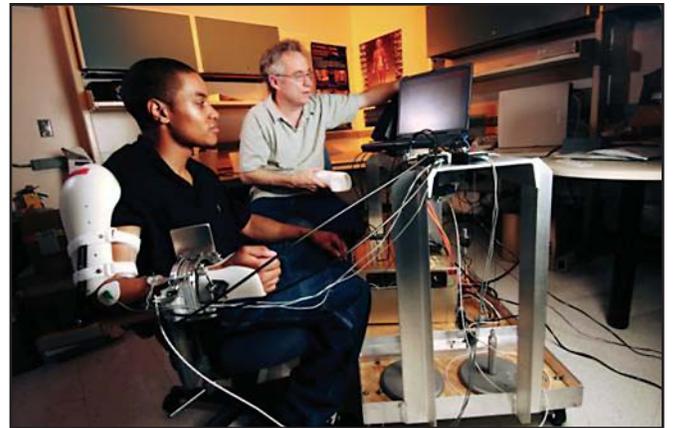
When Daniel Hegeman graduates from Georgia Tech, he'll have much more than a top-ranked undergraduate education. Daniel, a junior studying aerospace engineering, has been working at the Georgia Tech Research Institute (GTRI) – Georgia Tech's applied research arm – between classes and his regular schoolwork.

At GTRI, he's helped develop and test aerodynamic improvements that could boost fuel efficiency in heavy trucks and other vehicles by as much as 11 – 12% at highway speeds. As part of the project, he's operated GTRI's subsonic wind tunnel, worked as part of a research team with top experts in aerodynamics, and even helped author journal articles on the research.

While those duties were a bit intimidating at the outset, Daniel found he was welcomed and involved by his GTRI researcher workmates.

"Amid all the pressures, including tight deadlines and tighter budgets, the researchers were interested in helping me succeed," he says. "I was included in important meetings, respected like a peer, and am applying what I learned in class. They really made me feel like I mattered."

Georgia Tech's Co-operative Education Program is a five-year academic program in which students alternate semesters of full-time study and full-time work. With about 3,000 students participating, Georgia Tech's program is currently the largest totally optional program in the United States.



Researcher Dinal Andreassen (right) and student intern Donald Walker test the GTRI's Rehab Robot, a project aimed at helping speed rehabilitation of those with serious injuries to limbs.

As the largest employer of Georgia Tech co-op students, GTRI in any given year employs more than a hundred bright graduate and undergraduate students to work side-by-side with our researchers. The students are immediately put to work on real projects for real sponsors who need real-world solutions. Many of the highly skilled researchers we employ are Georgia Tech graduates. Each year 15% - 25% of our newly hired, full-time researchers are former co-op students.

Operating as an integral part of Georgia Tech - a top ranked research university - GTRI conducts world-class applied research and delivers leading edge, real-world solutions and training to indus-

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Annual ELSYS Picnic and Softball Challenge

After filling their bellies at a feast fit for a king, everyone's attention turned to the softball diamond at this year's Annual Electronic Systems Laboratory (ELSYS) Picnic. The System Evaluation Division (SEV) came out on top again, beating the Systems Engineering Division (SEN). The annual game has been played between the two major divisions in the laboratory for the past eight years. SEV leads the series five games to three.



Director's Notes..

Why We Are and Where We Are...

GTRI plays an important role in achieving the university's vision - "... define the technological research university of the 21st century and educate the leaders of a technologically driven world". Our role in education is no less important than our role in research. While we focus a majority of our attention on maintaining and advancing our reputation as a technically preeminent applied research institute, we are key players in the education arena as well.

In addition to the many courses taught across campus by GTRI researchers and our valuable GTRI-produced continuing education courses, we are a power player in the nation's largest fully voluntary cooperative education (co-op) program. As this issue's cover story mentions, GTRI is the largest employer of Georgia Tech co-op students. In fact, many of our own researchers started off as co-ops.

The days of GTRI being known as a small engineering research facility in Atlanta are long gone; today we're everywhere. GTRI has a national presence through our Huntsville, AL research laboratory and a network of field offices and research sites in Arlington, VA; Huntsville, AL; Quantico, VA; Dayton, OH; Albuquerque, NM; Orlando, FL; Warner-Robbins, GA; Jacksonville, FL; San Antonio, TX; San Diego, CA; and Tucson, AZ.

To help spread understanding of the valuable services our teammates outside Atlanta provide to GTRI, Georgia Tech, and our research stakeholders we are now profiling in the GTRInsider our satellite locations across the country. It will also help us get to know our colleagues better.

You may not realize it, but Georgia Tech's President Wayne Clough and I both view GTRI's satellite locations as extensions of the Tech campus. In fact, the President frequently uses our field offices for meetings and often brags about our national presence. It's also very common to have a field office host a GT alumni group or serve as a host site for a continuing education course. In the coming months these valuable offices will serve as locations where we'll offer our professional Masters in System Engineering (see page 5 for more information).

If you happen to be visiting a city where we have an office, stop in to say hello and be sure to check out the article in this issue about this month's featured location - Dayton, OH.

A handwritten signature in black ink that reads "Stephen E. Cross".

Dr. Stephen E. Cross
Vice President, Georgia Tech
Director, GTRI



The *GTRInsider* is a quarterly publication created for employees and friends of the Georgia Tech Research Institute. It is produced by the GTRI Communications Office, with additional content provided by GTRI departments and labs. We welcome your comments and suggestions. If you have information or story ideas you would like to submit for consideration, please complete the form on the back cover of this newsletter or e-mail your submission to the GTRI Communications Office at kirk.inglehardt@gtri.gatech.edu

CHARITY BIKE RIDE

By Micah Wedemeyer, ELSYS

On October 1st, Emory University hosted a charity bike ride to raise money for victims of Hurricane Katrina. To show their support for the people of the Gulf Coast, three members of GTRI's Electronic Systems Lab (ELSYS) formed Team ELSYS and signed up to ride.

The route followed a relaxed 20-mile course that took the team throughout Decatur. Thanks to a few wrong-turns and several miles of back-tracking, ELSYS's riders managed to collectively log a little over 66 miles over the course of 2 hours and 20 minutes.

Each rider was asked to make a \$15 donation to the relief effort. Team ELSYS was also sponsored by Phoenix Noodle Café, owned by the family of fellow GTRI employee David Tran. Phoenix Noodle Café pledged \$50 to The Red Cross in support of the team. Thanks to the generous donation from Phoenix Noodle Café as well as the riders' donations, Team ELSYS managed to raise \$95 for the relief effort.

In the end, it turned out to be a great day for cycling. All members of Team ELSYS finished the course, there were no injuries, everyone had a great time, and money was raised for charity.



Team ELSYS at the start of the ride. From left to right:
Kyle Harrigan, Bart DeBacker, Micah Wedemeyer

Team ELSYS has plans to participate in future rides and welcomes riders from the whole GTRI community. For information about joining up, contact Micah Wedemeyer at micah.wedemeyer@gtri.gatech.edu or (404) 385-6754. ●

> Up Close and Personal With...

Rich Nakasato

NAME/LAB:

Richard Nakasato / ELSYS/Research Engineer I

WORK LOCATION:

Centennial Research Building

GTRI EMPLOYEE SINCE:

Coop 1999-2003, Full-Time 2004-Present

OTHER POSITIONS I'VE HELD HERE:

Workstation Administrator

MOST MEMORABLE JOB EXPERIENCE:

Bringing down the computer that controlled badge access to GTRI buildings

WHAT I LIKE MOST ABOUT MY JOB:

Getting to sound fancy by telling people that I work on "Electronic Warfare Countermeasures for US War Fighters"

IF I WON THE LOTTERY, I WOULD:

Buy an M5.

MOST FAVORITE FOOD:

Pho

SOMETHING YOU PROBABLY DIDN'T KNOW ABOUT ME:

Up until I was at least a teenager, I thought limes were baby lemons

SOMETHING ELSE YOU PROBABLY DIDN'T KNOW ABOUT ME:

If there was a question about limes and lemons on the SAT, I probably would not have gotten into Tech

FAVORITE T.V. SHOW:

FAMILY GUY!!!

PEOPLE TELL ME I RESEMBLE:

A "Latin American"... OLE!

IF I COULD PICK SOMEONE OUT OF HISTORY TO HAVE LUNCH WITH, I WOULD CHOOSE:

Not sure... I'll get back to you on this one.



Rich Nakasato

THREE WORDS THAT DESCRIBE ME BEST:

Jejune! Soporific! Mawkish!

NOMINATED FOR THIS PROFILE BY:

Shane Owens

If you'd like to nominate a colleague to be featured in the next 'Up Close and Personal With...' please see the form on the back of this issue of the *GTRI Insider*.

Performance Evaluations, Co-Ops, and Training

By Suwana Murchison, PST

Get Prepared for Performance Evaluations

The GTRI Performance Evaluation Program (PEP) will begin in January; however, preparations should start now.

Supervisors responsible for rating the performance of research faculty should review all 2005 goals and objectives stated on 2005 PEP support forms. Consider using an evaluation form to provide feedback and helpful suggestions on areas in need of improvement.

All employees should review their annual goals and make sure they are near completion. To avoid any surprises at evaluation time, it's always helpful to pursue feedback on your daily performance.

Questions? Contact Suwana Murchison
suwana.murchison@gtri.gatech.edu (404) 894-2880.

Update For Co-op Rates

Co-op rates for FY06 are available on WebWISE at the PST web site under Web Reports.

<https://webwise.gtri.gatech.edu/Personnel/studentwages.html>

Questions? Contact Alan Golivesky
alan.golivesky@gtri.gatech.edu (404) 894-6214

Excellence in Government Contracting

Learn the secrets to cutting through Government red tape on Government-funded research programs. The most common restrictions, contracting vehicles, forms, reporting requirements, and pit-falls will be discussed. The course will focus on the "post-award to closeout" phases of a typical government contract. This course is designed for GTRI Research Faculty.

Prerequisite(s): GTRI Project Management

To register for this course, contact Gaynell Scott gaynell.scott@gtri.gatech.edu at (404) 894-7588 or visit the PST web site at <https://webwise.gtri.gatech.edu/Personnel/training.html> ◉

Contracting Course Information

December 7, 2005

8:30 a.m.-1:30 p.m.

Centennial Research Building

Room 119

HESL UPDATE: Interim HESL Director Named

GTRI Chief Scientist Dr. Jeff Sitterle has been named Interim Director of GTRI's new Health and Environmental Systems Laboratory (HESL), effective October first 2005. During his temporary appointment, he says his goals will include setting up a stable financial foundation for the lab, developing a workable organizational structure, and ensuring that all of the right people and facilities are in place to achieve great things. "The goal is to establish a sound basis for development of high quality proposals in the areas of Health and Environmental Systems that will be the basis for future growth under the permanent director," Dr. Sitterle says. The search for a permanent lab director will begin later this year.

Approaching 19 years of service with GTRI, Dr. Sitterle, has worked as a researcher, program director, division chief, lab chief scientist, laboratory director, and is currently GTRI's chief scientist. He has led the Applied Biomedicine Research Initiative and was the founding Director of DenTeC, Georgia Tech's Dental Technology Center. ◉

Successful Audit!

Kudos to Sandra Kirchoffer, Kathy Falconer and Jill Holder in Research Property Management. They received a satisfactory audit result from the Office of Naval Research for the work they do on behalf of GTRI and the entire university during the Property Control System Audit. Auditors selected at random 42 pieces of equipment that were procured with Government funds. Research Property had to show that documentation existed for each item and that the equipment was actually where the documentation indicated. This audit was conducted throughout the university, not just within GTRI. Very impressive! ◉

External Advisory Council Visits Atlanta



Dr. Cross honors Maj. Gen. Gerald J. Carey (USAF Ret.) as he is named EAC Emeritus

The GTRI External Advisory Council met in Atlanta on October 19th and 20th. The council reviewed the GTRI strategic plan, had tours and technology demonstrations in several labs, and visited GTRI's new food processing technology building.

While there were many recommendations and offers to help, the two most important observations were that the GTRI strategy is right, execution is key and that technical excellence is more important than technical preeminence. Dr. Cross has updated the GTRI strategic plan to stress excellence over preeminence. The rationale is explained more fully in the GTRI Director's post dated October 28, 2005, now available on WebWISE.

The meeting also served as a time to recognize Major General Gerald J. Carey, Jr. (USAF Retired), for his years of service as the chairperson of the EAC. It also was the perfect setting to install and recognize the new EAC leadership. Dr. John F. Cassidy, Jr., Retired - Senior Vice President, Science and Technology United Technologies Corporation, is the new EAC Chair. Mr. John C. Bacon, President and CEO, Intellectual Property Partners LLC, is the new Vice-Chair, State and Industry and Mr. Alan J. McLaughlin, Lincoln Laboratory (Ret.), is the vice Vice-Chair, National Security. ●



GTRI's External Advisory Council

Pictured (L-R): James W. Tysinger, John F. Cassidy, Jr. (new Chair), Alan J. McLaughlin (new Vice-Chair, National Security), Susan M. Coughlin, Robert S. Cooper, John C. Bacon (new Vice-Chair, State and Industry), Ben J. Dyer, Glen P. Robinson, Jr., Gerald J. Carey – (past Chair – EAC Emeritus)

Not Pictured: Kathy Ashe, Bart Barthelemy, Herbert A. Browne, H. Allen Ecker, Jack Hill, Joseph A. Saloom, John J. Welch

Systems Engineering Master's Program Talk about Collaboration!

By Anne Bachelor, EOSL

Georgia Tech, in response to Government and industry requests and projected requirements, is creating a non-credit certificate program and a Professional Masters in Systems Engineering. This is a collaborative effort among the College of Engineering (CoE), GTRI, and the Office of Distance Learning and Professional Education (DLPE). Unique to this program will be the interaction between academia and application in typical system engineering environments and projects. CoE professors, DLPE, and GTRI research faculty experienced in systems engineering will offer an educational experience that is targeted to speed the systems engineering education and experience of practicing

engineers and scientists. The certificate program requires introductory courses in systems engineering and engineering management, an additional elective, and participation in a one week workshop. Course projects and case studies can target a particular sector if requested by an organization. The Professional Masters requires additional elective courses and job related course projects (which may be classified secret) in lieu of a thesis.

GTRI has also teamed up with the CoE and DLPE to offer a masters degree in Systems Engineering. The CoE will offer the courses, which will be scheduled through DLPE, and taught by GTRI and CoE faculty who will also supervise research projects. ●

Support Services: HELPDESK

By Judy Harrison, SSD

The Support Services helpdesk provides valuable services to the researchers and staff members of GTRI. They handle all facility requests such as telecommunication, maintenance services, key requests, office/lab moves, custodial needs, copier needs, etc.

Telecommunication requests include new lines, line transfers, repairs, and voice mail issues. Maintenance services include hanging pictures, painting rooms, HVAC, door repairs, light bulb changes, etc. The help desk staff also handles approved key requests, lock core changes and, of course, key returns. Custodial needs include floor cleaning, carpet cleaning, and basic janitorial services. Lab/Office move requests are submitted utilizing a move form that is accessible through the web at <http://www.gtri.gatech.edu/ssd/> Any copier requests generally address repairs and supplies.

Submit requests to the help desk staff via ssdhelp@gtri.gatech.edu or through the new web-based application which can be reached by emailing: tma@gtri.gatech.edu The help desk strives to process requests received through SSDHelp within 24 hours. Requesters receive an immediate tracking number through the web-based application.

The helpdesk is staffed by Mary Henderson located on campus at 404-894-3407, and Lisa Gardner located at the Cobb facility at 770-528-7003. If you have questions regarding the help desk, please contact DeeAnn Reese at deeann.reese@gtri.gatech.edu or 404-894-4563. ●



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Or, if you want to
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make up a caption!

Send to

GTRInsider@gtri.gatech.edu



Dayton Field Office

By Dave Erickson, Manager, Dayton Field Office



CEREBRAL HUMOR

A mathematician, a physicist, and an engineer are all given identical rubber balls and told to find the ball's volume. They are given anything they want to measure it and have all the time they need. The mathematician pulls out a measuring tape and records the circumference. He then divides by two times pi to get the radius, cubes that, multiplies by pi again, and then multiplies by four-thirds calculating the volume. The physicist gets a bucket, places 1.00000 gallons of water in the bucket, drops in the ball, and measures the displacement to six significant figures. And the engineer? He writes down the serial number of the ball, and looks it up. ●

Established in April 1988 in Beaver-creek, Ohio just ten minutes from Wright-Patterson Air Force Base, GTRI's Dayton Field Office initially focused on the Air Force's Electronic Warfare Techniques Development program. The first two employees in Dayton were Paul Seaton and Dave Erickson. Within a year, the office grew to six as the research expanded to include airborne radar.

In 1990, the field office mission was changed to emphasize support for all laboratories. Specific laboratories still maintained a local presence, but the goal was to maintain a greater awareness of the research and engineering activities across Wright Patterson AFB.

In 2000, the Dayton Field Office was moved to a large office complex in Fairborn, Ohio, closer to other Air Force contractors. Occupying approximately two thousand square feet of space, the facility provides a conference room, offices for five researchers, and work space for visitors.

Campus visitors regularly use the

conference room for sponsor and internal meetings. It can be converted into a classroom and has been used to conduct continuing education courses. Most recently, "Principles of Modern Radar" was conducted by Bill Holm for the National Air and Space Intelligence Center.

Today, the field office provides insight, proposal and research support, and representation for campus researchers with an interest in activities at Wright-Patterson AFB. Field office researchers participate in many community and base activities with their research sponsors. Its location near the base also helps to develop collabora-

tive relationships with the many Air Force contractors in the area.

Wright Patterson AFB is considered the largest, most diverse, and organizationally complex base in the Air Force. Missions range from acquisition and logistics management to research and development, education, flight operations, and many other defense related activities.

Major organizations headquartered at Wright Patterson include the Aeronautical Systems Center, the Air Force Research Laboratory, Air Force Material Command, and the National Air and Space Intelligence Center. The base is also home to the Air Force Research Laboratory's Human Effectiveness, Materials and Manufacturing, Propulsion, and Sensors directorates.

For more information about GTRI's Dayton Field Office please contact David Erickson at dave.erickson@gtri.gatech.edu or 937-427-0499 ●

Management and Project Support (MAPS)

By Sharon Mattson, MAPS

Years ago, in proposal budget preparation or project financial support, researchers prepared figures on the back of an envelope, using their slide rule, or eventually with the help of the HP LED calculator. Times have changed and GTRI proposal budget preparation and project contractual and financial support has become more complicated. These changes have resulted from changes in GTRI's cost recovery system and frequently from sponsor requirements.

The Management and Project Support (MAPS) Department was established in July 1990. MAPS was implemented as a result of the recommendation of a task force that analyzed the contractual and budgetary support of projects and management reporting requirements throughout GTRI. A central core of employees was reassigned from the labs into the organization known as MAPS. There were once 49 employees performing MAPS-like functions. Today, there are 16 full-time and 3 part-time employees in MAPS, with 2 employees in the labs performing financial functions. Streamlining has led to an enormous cost savings.

Today, MAPS analyzes, plans, suggests and utilizes resources in support of project, lab and GTRI management. This

includes pricing proposals, monitoring contractual requirements, interfacing with other units, and using management information systems to assist in determining directions to pursue as trends and new insights are identified.

Our vision is to assist in the implementation of integrated proposal pricing and project planning tools, allowing for efficient completion of pre-award and post-award activities. These tools include an online proposal system, the capability to generate all proposals electronically, and a centralized proposal database.

Our Functions and Responsibilities are:

Fiscal

- Financial Cost Reports
- Lab Allocation Accounts
- Sponsored Estimates
- Unbillable Charges
- Accounting Transactions
- Project Closeout

Contractual

- Proposal Budgets
- Deliverables
- No Cost Extensions
- New Awards

Other Support

- Access Corporate Tables
- Monthly Management Reviews

The MAPS Staff:

CRB MAPS

Jerry Lett	404-894-4428
<i>Department Manager</i>	
Judy Fitzpatrick	404-894-0704
Cindy LaGesse	404-894-5397

BAKER MAPS

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<i>MAPS Manager</i>	
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Tamika Bryant	404-894-7084
Sharon Mattson	404-385-1652
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Frances Shiflett	770-528-7715
Debbie Winn	770-528-7824
Helen Hunton	770-528-7750
Charlotte Irvine	770-528-7714

- Continuing Education
- Interaction w/ Support Units
- Waivers/Cost Sharing

For more information about us, visit our website at

<http://www.gtri.gatech.edu/maps/> ●

GENESIS USERS MANUAL NOW ONLINE

The updated Genesis Users Manual for 2005 is now available online. The major changes are in the Abstracts section of the manual and the on-line Help with the Genesis application. It is available on-line in the Genesis application <https://genesis.gtri.gatech.edu/> You can access the Genesis Users Manual by going

to the Main menu and selecting Administrative Forms. The Users Manual is listed as a document. You can also select Search Main Menu and choose Administrative Forms and enter the search terms of "genesis, users, or manual," and the document will appear in the list.

There are tips on enhancing searches to yield richer results or narrowing searches to more closely meet your needs.

If you have techniques that you feel might benefit users or have questions, please contact lee.hughes@gtri.gatech.edu. ●

SECURITY UPDATE: Understanding Export Control

By Steve Woodall, Director, Research Security Division

Export control is a hot topic at universities across the United States as it creates a potential conflict between open discussion of research and the government's desire to protect technology. The Office of Legal Affairs, Office of Sponsored Programs, Resident Instruction, and GTRI's Research Security Division (RSD) have teamed to assist all campus personnel in dealing with export control issues.

The U.S. Government has implemented various regulations consistent with the U.S. national security and nuclear nonproliferation objectives which restrict the transfer of export controlled goods and or information without a license. An export can occur through a variety of means, including oral communication, written documentation, or transfer of US computer software to a foreign national whether in the US or abroad. The individual

researcher and Georgia Tech can be held liable for improperly transferring controlled information; therefore, it is important to ensure that information discussed falls within one or more of the following categories:

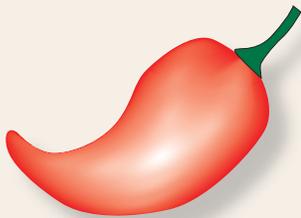
Fundamental Research and Information Resulting from Fundamental Research

Under the regulations Fundamental Research includes basic and applied research in science and/or engineering at an accredited institution of higher learning in the U.S. where the resulting information is ordinarily published and shared broadly in the scientific community. Fundamental research is distinguished from research that results in information that is restricted for proprietary reasons or pursuant to certain government access controls.

Published Information and Software (publicly available)

Public domain refers to information that is published and/or generally accessible to the public in a variety of ways, such as publication in books and periodicals, available in a public library, and presented at open events. An open event is one where members of the public are able to participate and attendees are permitted to take notes. Many conferences and trade shows are considered open events.

RSD is working on a Web site where export control and other related information can be obtained. Until it is developed, please contact the RSD Hotline at rsdhotline@gtri.gatech.edu or by calling the Export Control Helpline at 404-385-6541 for more information. ●



RED HOT CHILI COOK-OFF!

GTRI's Health and Environmental Systems Laboratory spiced things up in late October with its 2005 Annual Fall Chili Cook-Off. There was quite a variety of creative concoctions to sample but only one recipe could be hailed as the grand champion. This year, Terry Bridges from GTRI's Personnel Support Team took top honors with her special "Toot Your Praise!" chili.

Second place was snagged by HESL researcher Jim Pearson and his "No Name Chili", and coming in third place was HESL program coordinator Ann Harbert's "Drunken Chili". ●

Top: Ken Johnson (HESL) and GTRI Director Steve Cross "spicing things up"

Bottom: The esteemed judges, who actually had smoke coming out of their ears, (l to r) Alan Golivesky (PST), Martha Farley (DDO), Tom Horton (DO)



GTRI Research Notes

Special thanks to the Georgia Tech Research News and Publications Office for the following stories



GTRI's ULTRA-AP Unveiled

Shown publicly for the first time in September 2005 at the Modern Day Marine Expo in Quantico, Va., the ULTRA AP (Armored Patrol) concept vehicle was built to help the U.S. military evaluate multiple science and technology options that could benefit future vehicle design.

Research and development for the ULTRA has been conducted by the Georgia Tech Research Institute (GTRI), which led a unique team of research engineers from both GTRI and the automotive industry. The research initiative has been sponsored by the Office of Naval Research (ONR).

“By bringing together experienced commercial vehicle designers with experts in advanced materials and cutting-edge engineering, we are providing a test bed for evaluating technologies

that can help the military develop ‘leap ahead’ concepts,” said David Parekh, GTRI’s deputy director.

“By including persons with high-performance automotive engineering and NASCAR expertise as part of our team, we were able to root this advanced concepts project in real-world vehicle design.”

The ULTRA AP emphasizes high-output diesel power combined with advanced armor and a fully modern chassis. The design matches the best of modern commercial automotive technology with racing experience, explained Gary Caille, a GTRI Principal Research Engineer.

In the ULTRA AP, the GTRI/industry team has made improvements in two key areas by taking a systems approach to survivability and safety.

By providing the ULTRA AP concept vehicle for the U.S. Marine Corps and U.S. Army to study, ONR expects to spur innovative thinking and gather feedback on the ideas being demonstrated.



Augmented Reality

Technology that transfers computer-generated information into the physical world is being tested for use in poultry plants to improve communication between computers and workers.

Using Augmented Reality (AR) technology, researchers have designed two systems that project graphical instructions from an automated inspection system onto birds on a processing line. These symbols tell workers how to trim or whether to discard defective products.

“Right now, inspection is done visually by human screeners who communicate instructions to trimmers using gestures. But an automated inspection system developed and field tested by GTRI is being commercialized, and poultry plant officials are likely to implement the technology in the near term, said Craig Wyvill, head of the GTRI Food Technology Processing Division.

“When that happens, the industry will need an efficient way to link communication from the imaging system to the trimmers,” Wyvill noted.

So, in a project funded by GTRI’s state-supported Agricultural Technology Research Program, GTRI researchers are collaborating with experts in the Georgia Tech College of Computing to use AR technology in poultry plants.

Researchers have had to consider that poultry processing plants are typically wet and slippery and have to be thoroughly washed down with high pressure water streams daily. Also, trimmers need simple, graphical instructions and must have their hands free of any objects except a knife for cutting defective bird parts.

The first approach uses a location-tracked, see-through, head-mounted display worn by a trimmer. It directly overlays graphical instructions on a trimmer’s view of the birds.

A second solution uses a laser scanner, mounted in a fixed location near the processing line, to project graphical instructions directly onto each bird that requires some action, such as trimming. In this approach, the product, but not the user, must be tracked for the instructions to appear on the product.

It may be several years before the technology is commercially available, Wyvill noted. Typical technology development time is four to six years. This project has been under way for more than a year now.



Learning Tool for Landlubbers

It's tough to acquire a taste for oceanography when you're surrounded by urban asphalt, farm fields or suburban malls. Yet with SeaMaven, land-bound, middle school students can enter the world of marine biology and related sciences.

Developed by researchers at GTRI, SeaMaven is a unique Web portal (www.seamaven.org) that gives students access to continuous, near-real-time data collected from naval platforms 60 miles off the coast of Georgia.

Eight platforms, currently operated by the U.S. Navy for flight training, have been equipped with sophisticated sensors to monitor various ocean and meteorological conditions, such as barometric pressure and dissolved oxygen in water. Located both above and under the water, these sen-

sors are part of an observational network used by researchers, weather forecasters and environmental resource managers.

In cooperation with the Savannah-based Skidaway Institute of Oceanography which manages the network, GTRI uploads data every hour to SeaMaven. This enables students to participate in a variety of learning activities – from mapping the ocean floor to understanding the moon's effect on ocean tides.

"SeaMaven gives students a better idea of how science is applied in the real world," says Jim Demmers, project director and a senior researcher in GTRI's Information Technology and Telecommunications Laboratory (ITTL).

Demmers' inspiration for SeaMaven stemmed from his work with Foundations for the Future, a collaboration of Georgia Tech researchers that helps K-12 educators incorporate technology into classrooms throughout Georgia. "Students can read about ocean management in a textbook, but that doesn't really give them a clear idea of what marine scientists do," Demmers explains.

"SeaMaven also helps students understand the connection between people's activities on the mainland and how that affects the ocean," he adds. For example, middle-schoolers can analyze how onshore rainfall and runoff affect ocean salinity, a concern for the shrimping industry.

Funded by the National Science Foundation, SeaMaven began in 2003, when Demmers met with a group of middle school teachers to seek recommendations for learning activities to be included in the Web portal. Last fall, students at Dickerson Middle School in Marietta, GA, tested a prototype of SeaMaven.

One of the features the students especially liked about SeaMaven was an ask-the-scientist page where they could e-mail questions to researchers. Yet perhaps the biggest draw was SeaMaven's authenticity. "This isn't something in a book. It provides real data from a place that's near them," Baker says. "There aren't many things like this that are available to classrooms – especially for free."

Based on reactions from the pilot test, Demmers has been fine tuning SeaMaven and expects it to be ready for widespread use this fall.



Computer Vision System for Food Processing

For the past year, John Stewart, a research engineer at GTRI, has been leading a development team in building a computer-vision system that identifies plastic and other unwanted elements in finished food products. The project is funded by Georgia's Traditional Industries Program for Food Processing with additional support from industrial partners.

Incidences of plastic contamination are infrequent, but when they occur, fallout can be extensive. Recalls are expensive, not only in terms of logistics and returned product, but also because recalls can tarnish a company's brand image and reduce consumer confidence.

To help food processors ensure product quality, GTRI's innovative inspection tool combines computer-vision technology with sophisticated color discrimination algorithms. The

computer-vision system, which sits above the production line adjacent to metal detectors, is first trained to identify the conveyor belt background and desired characteristics for the food product.

This information is stored in the computer, and as the product moves along the conveyor, the computer-vision system captures and analyzes digital pictures. If the system sees an object it doesn't recognize, it records the digital image and activates an alarm and kick-off device that removes the product from the line.

Though lab tests focused on finding plastic fragments in poultry products, GTRI's computer-vision system can identify non-plastic contaminants, such as glass, and be used for meat and other food products.

"We're trying to make the system as generic as possible, so anything that doesn't look like the product will be detected," Stewart said.

Awards & Outstanding Achievement

James McMichael (Director, ATAS) has been selected to become a member of the NASA Vehicle Systems Program Subcommittee (VSPS) which is an Advisory Subcommittee to NASA.

VSPS is a subcommittee established to provide advice and recommendations to the Aeronautics Research Advisory Committee (ARAC), a standing committee of the NASA Advisory Council. The VSPS advises the ARAC by addressing relevant national needs of current and planned NASA-funded research programs related to vehicle systems including, but not limited to, aircraft noise and emissions, concepts for increased access and mobility, and systems to support science mission.

Robert Englar (ATAS) received the 2003 Arch T. Colwell Merit Award. The award was presented during the SAE 2005 World Congress on April 12, 2005.

The Arch T. Colwell Merit Award recognizes authors who have written papers of outstanding technical or professional merit. Englar's paper, "Drag Reduction, Safety Enhancement and Performance Improvement for Heavy Vehicles and SUVs Using Advanced Pneumatic Aerodynamic Technologies" was among the eleven papers selected for this year's award.

Gisele Bennett (Director, EOSL) was recently appointed as topical editor for Applied Optics, an Optical Society of America Journal.

Bill Gregory (RSD) and **Al Concord** (STL) have recently completed the arduous process of becoming Certified Protection Professionals (CPP). This

is a prestigious certificate for security professionals awarded by the American Society for Industrial Security (ASIS) International.

Fred Wright, Dayne Gardner and Robert Morris (ELSYS), were awarded Most Innovative/Creative Paper at 2005 ITEA Symposium, Albuquerque, NM, on September 28, 2005. The title of the presentation was "Concepts for Transformation to Network Centric T&E".

Mark Pellegrini, Jeanne Balsam and Jean Swank (ELSYS) were awarded "Best Paper" at the Better Software Conference in San Francisco on September 22, 2005. The paper was entitled "Let's Do It All Over Again: Ruin Your Reputation Through Configuration Mismanagement."

George B. Harrison (SIO), the Director of Strategic Initiatives for GTRI received the Air Force Analytic Community's Lieutenant General Glenn A. Kent Leadership Award. The Award was presented by General "Buzz" Mosley, Air Force Chief of Staff, on 10/12/2005.

Ron Bohlander (ITTL) has just been reappointed to the Society of Manufacturing Engineers Membership Council for 2006, overseeing the needs of the society's members internationally.

Joe Bruder (SEAL) received an award from the NASA Aviation Safety & Security Program on September 21, 2005 "for outstanding contributions to aviation weather safety research and development."

Mike Rogers (HESL) paper, "Methodology for Developing Transit Bus Speed/Acceleration Matrices to be Used in Load-Based Mobile Source Emissions Models," was selected by the Transportation Research Board of the National Academies as the winner of the Pyke Johnson Award. This award is presented annually for the best paper in the area of planning and the environment. Mike and his co-authors will be presented with the award at the 85th annual meeting of the Transportation Research Board in January 2006.

Dr. Allen Ecker (EAC Member) is being honored with a Lifetime Achievement Award for Innovation by the Atlanta Telecom Professionals (ATP), the first award of its kind that the group has ever bestowed. Presented on 11/8/2005

If you'd like to submit an accolade for our next issue please email kenya.ervin@gtri.gatech.edu or GTRInsider@gtri.gatech.edu ●

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GTRI's Very Own Ironman

By Shayne Kondor, HESL

Your mission, should you choose to accept it: swim 2.4 miles, cycle 112 miles, then run a marathon (26.2 miles). Do it in less than 17 hours and you will earn the title of Ironman. Some people think it is an impossible feat, others see it as the ultimate test of athletic endurance. Once you have done it, you are addicted.

Shayne Kondor, Senior Research Engineer - HESL, accepted the mission and set his sights on completing Ironman Wisconsin on September 11, 2005. After 12 hours, 53 minutes and 12 seconds of swimming, cycling and running, he earned the title of Ironman Triathlete; finishing in the top 25% of the 2074 triathletes that started that morning. The extreme heat, humidity and wind on the course that day made the race one of the most challenging ever in the history of the Ironman North America series. It was a fitting setting for a Tech alumnus since it was highly probable that the person to the right or the left at the start would not cross the finish line. One in five of the starting field did not finish, many were removed from the race for medical reasons; a tough break considering that nearly every entrant had trained

for at least one year, some for several years, to meet the Ironman challenge.

Shayne started his quest to be an Ironman after visiting Kona, HI, on a cycling vacation in 2003. "I stood under the sign that marked the start-finish line of the Ironman World Championship and gave myself three years to return as a competitor," he says. Upon return from that vacation his training started. Already a competitive runner in local 5 & 10K races, it was time to step back and build up an aerobic base to carry him for 140.6 miles. Training started most days before work at 6 AM at the Northwest YMCA in Acworth. The next Spring, he began competing in Duathlons (run, cycle, run events) earning a national ranking of 68th in the Male 35-39 age group from USA Triathlon. At the end of the 2004 season he joined the Leukemia and Lymphoma Society Team in Training, and trained all winter to compete

in a Half-Iron distance triathlon, the Gulf Coast Triathlon in Panama City Beach, FL. Shayne raised \$2900 for the Leukemia and Lymphoma Society during his training to compete in the Gulf Coast Triathlon. ●



Shayne Kondor, Senior Research Engineer - HESL

RATE MANAGEMENT: Understanding TSLB

By Rebecca Caravati, Rate Management

What does the frequently used acronym TSLB stand for? Total Sponsored Labor Base. What is it, what does it mean? It is the total amount of salaries and wages charged by the laboratories to sponsored projects. Sponsored projects are funded by various external sponsors. Our sponsors include the federal government, state and local governments,

and industry. TSLB includes salaries and wages charged to the various sponsored projects, plus their pro rata share of leave and fringe benefit costs. TSLB is used in GTRI to measure the level of sponsored activity within the various labs. It is also used as a measure to determine how to allocate GTRI's internal funds for non-sponsored activities between the various labs. Non-

sponsored activities are those which cannot be charged directly to a sponsor. Examples include professional development, selling costs, and lab administration.

For questions or more information please contact Rebecca Caravati at rebecca.caravati@gtri.gatech.edu or call (404) 385-2818. ●

Process Action Team Update

By Jean Swank, ELSYS

It's exciting to be a part of the Work Council that is addressing process improvements in GTRI. This coordinated effort between the Office of Sponsored Projects (OSP), GTRI's Management and Project Support (MAPS) Department, GTRI administration, campus, and lab personnel has a great likelihood of succeeding. Everyone's help is needed to make things happen.

There are currently two major projects under the guidance/support of two Process Action Teams (PATs). The first is **Project Setup**, which covers the life of a GTRI project from contract acceptance through final setup in accounting and reporting systems. The second is **Security - Document Control**, which covers control of classified documents.

Since the **Project Setup Team** first met in July, a subgroup was created to review the Primavera and Enterprise Planning and Management tools. GTRI needs a common tool for generation of budgets (proposal and project), planning, scheduling (resources over time), monitoring/controlling (updating over time), and reporting. The team approved issuance of an RFP for that common tool.

Other improvements include OSP's assignment of project numbers. After a project is awarded, OSP no longer requires detailed



budget information from the project director. Accounting is also no longer required to enter a project budget based on the proposal, when applicable. These improvements should be visible to project directors as the time needed to set up the accounting and eTime for projects gets shorter.

The **Security - Document Control Process Action Team** met for three days in August to define the "as-is" and "to-be" process. The team learned that three processes actually exist: Document Return to Customer, Project-to-Project Transfer, and Incoming Documents. Problems were found in the areas of database (SIMS) and staffing.



GTRI has terrific employees and we are all working to create processes that make our lives easier, not more difficult. If you have comments about the improvements being made or areas where GTRI should focus attention in the future, please contact jean.swank@gtri.gatech.edu or (404) 407-6009. ●

GTRI FUNDRAISING EFFORTS

Did you know that as a Georgia Tech employee or retiree you can designate your annual (or any) gift to Roll Call to directly support programs within GTRI? Employees and retirees can now designate where their gifts go – so why not direct the funds to GTRI?

You can earmark your gift to any of the following **GTRI accounts set**:

- 351172 GTRI General Fund
- 352993 Research Faculty Leaders
- 352994 Shackelford Scholarships
- 352995 Equipment Funds
- 357569 DenTeC

If your gift is made in response to the Alumni Association annual solicitation or the Faculty Roll Call Campaign, you simply write the number of the account to which you want

to contribute anywhere on your gift form. You can also split your gift among more than one account. If you give online, simply put the account number(s) in the "special instructions" box provided.

We all want to support GT, so why not make your gift count for the future of GTRI? For more information please contact Tom Horton at tom.horton@gtri.gatech.edu or (404) 894-0239. ●

try and government organizations in the state, nation, and world.

Nearly 1,300 employees strong, GTRI conducts almost \$140 million in research and development each year for sponsors in industry, government, and academic institutions. GTRI's focus has moved far beyond simple engineering research and experimentation into a broad spectrum combining engineering, science, economics, and technical exploration. Today, GTRI conducts groundbreaking research, educational programs, and economic development initiatives that advance global competitiveness and security for both U.S. and international sponsors.

Another good example of GTRI's impact on students is Kirsten Lundstrom, a senior majoring in mechanical engineering. Her GTRI experience began with work in both civil and chemical engineering. Shortly after being hired, Kirsten found herself studying sustainability - creating buildings that are more people and environment friendly. From there, she began working with GTRI teams conducting training in asbestos abatement and studying the lead content in paint used in childcare facilities.

Today Kirsten is helping develop stronger and more lightweight armor for an experimental prototype military vehicle, the ULTRA Armored Patrol, which will have high-output

diesel power, revolutionary armor, and a fully modern chassis. She says her work has forced her to look beyond simple engineering and scientific theory.

"In class you work with a lot of individual systems, but in the real world it's all about how those smaller systems work together to form



Researcher Robert Englar (right) and co-op student Daniel Hegeman adjust blowing slots on a model truck inverted in GTRI's low-speed wind tunnel. The testing helped assess the value of fuel-saving improvements.

larger more complex and advanced systems," she says. "I now see the big picture - instead of building one part of a vehicle, I'm thinking about how we can build the whole thing. I truly feel I have a lot more to offer an employer after this experience."

"I get my hands dirty and it's great," she adds.

Donald Walker, a student at the Massachusetts Institute of Technology (MIT), spent his summer as an intern in GTRI's Aerospace, Transportation, and Advanced Systems

(ATAS) laboratory working on a robotic system for rehabilitating injured limbs.

Donald says it feels great to be doing things with a purpose, like 3D computer modeling and complex mathematics, that are being directly applied to a device that could help people recover from serious injuries.

"I talked to a lot of my buddies at MIT who had internships, and a lot of them were bored.

One of the things that made me really happy at GTRI was that I got to apply the engineering knowledge from the classroom directly to the project I was working on," he says. "Instead of sitting down with some math problems and saying 'what if this happened', I actually got to use my skills for a real purpose. I got hardcore engineering experience"

Daniel, Kirsten, and Donald are proud examples of GTRI's commitment to the future of research and innovation. They have spent time working on some very exciting programs, and there's much more taking place in GTRI's laboratories.

For more than 70 years, GTRI has been in the forefront of innovation, applying engineering principles to solve real-world problems.

Though the work being done today is vital, GTRI's commitment to preparing tomorrow's innovators is just as important because sharing and transferring knowledge benefits everyone. ●

ERB Relocation:

Wrecking Ball Hits GCATT

Construction continues with GCATT (now known as 250 14th Street) in preparation for ITTL's move-in projected for mid-January. The new phone numbers for GTRI will be 404-407-6000 through 8999. All attempts will be made to reuse 4-digit extensions for current numbers whose extensions are in the 6000-8999 range, but those with changing numbers will be notified well in advance. Items mailed with the correct name and mailing zipcode +4, will get to recipients after the move. ●



One of GTRI's goals is to hire the best, equip the best, and reward the best employees.

The following people have recently joined or retired from the GTRI team!

> Welcome to the GTRI Family!

START DATE	NAME	TITLE	DEPARTMENT/LAB	START DATE	NAME	TITLE	DEPARTMENT/LAB
7/18/05	PAUL A. MCKELLAR	RESEARCH ENGINEER I	GTRI-ELSYS	9/1/05	JOHNATHAN F. HOLMES	RESEARCH ENGINEER I	GTRI-EOEML
7/20/05	MORGAN L. MCLEAN	RESEARCH SCIENTIST II	GTRI-ITTL	9/1/05	JENNIFER C. MCDONALD	ASSOC DIR DENTAL TECH CENTER	GTRI-DD
7/21/05	KENNETH F. CHANEY	SECURITY SPECIALIST	GTRI-RSO	9/1/05	JIE XU	RESEARCH SCIENTIST II	GTRI-HESL
7/21/05	JEFFERY P. DARLEY	SECURITY SPECIALIST	GTRI-RSO	9/2/05	OLGA G. KEMENOVA	RESEARCH ENGINEER I	GTRI-HESL
7/21/05	ROY D. WASHINGTON	SECURITY SPECIALIST	GTRI-RSO	9/9/05	SHAWN K. MCNUTT	NETWORK SUPPORT SPECIALIST II	GTRI-RSO
8/1/05	JASON H. NADLER	RESEARCH ENGINEER II	GTRI-EOSL	9/12/05	BRIAN A. PARISE	RESEARCH SCIENTIST I	GTRI-EOSL
8/1/05	HILARIE L. SCHUBERT	RESEARCH SCIENTIST I	GTRI-HESL	9/19/05	DOUGLAS M. COHEN	SENIOR RESEARCH SCIENTIST	GTRI-ITTL
8/1/05	CAROL L. WILSON	ACADEMIC ASSISTANT I	GTRI-HRL	9/19/05	CANDY F. KANGAKI	RESEARCH TECHNOLOGIST I	GTRI-STL
8/8/05	SHAWN A. SCOTT	SECURITY SPECIALIST	GTRI-RSO	9/19/05	AKLILU T. GIORGES	RESEARCH ENGINEER II	GTRI-HESL
8/9/05	AMY Y. LIN	RESEARCH SCIENTIST I	GTRI-ELSYS	10/04/05	STEPHAN P. TURANO	RESEARCH ENGINEER I	GTRI-EOSL
8/10/05	JENNY L. CLAYTON	RESEARCH SCIENTIST I	GTRI-HESL	10/07/05	RUSSELL A. COMPTON	PROFESSIONAL	GTRI-ITTL
8/15/05	HERSCHEL R. HANELINE	RESEARCH ENGINEER I	GTRI-ELSYS	10/13/05	SHELIA D. ISBELL	RESEARCH SCIENTIST I	GTRI-ITTL
8/23/05	BENJAMIN T. BRACKETT	RESEARCH ENGINEER I	GTRI-ELSYS				

> Goodbye From the GTRI Family!

RETIRE DATE	NAME	TITLE	DEPARTMENT/LAB	RETIRE DATE	NAME	TITLE	DEPARTMENT/LAB
3/1/05	GEORGE R. WHITLEY	SENIOR RESEARCH ENGINEER	GTRI-SEAL	5/1/05	GWYNETH J. DALTON	ADMIN COORDINATOR	GTRI-HRL
4/1/05	JAMES W. COFER	PRINCIPAL RESEARCH ENGINEER	GTRI-SEAL	5/1/05	JIMMIE W. DALTON	SENIOR RESEARCH ENGINEER	GTRI-HRL
4/1/05	THEODORE J. DOLL	PRINCIPAL RESEARCH SCIENTIST	GTRI-EOSL	6/1/05	MARY E. MCKENNA	PROJECT SUPPORT ANALYST II	GTRI-MAPS
4/1/05	OSCAR D. ASBELL	SENIOR RESEARCH ENGINEER	GTRI-SEAL	8/1/05	AUSTIN H. BLOCHBERGER	PROGRAM MANAGER	GTRI-MAPS
4/1/05	ELAINE M. BARAN	GRAPHICS SPECIALIST	GTRI-STL	8/1/05	SUZANNE L. RENAUD	ADMIN SUPERVISOR I	GTRI-ELSYS
4/1/05	MORRIS C. HETZLER	RESEARCH SCIENTIST II	GTRI-EOSL	8/1/05	CHARLES B. SHEETS	ELECTRONICS SPECIALIST	GTRI-ATAS
4/2/05	CHARLES M. STANCIL	SENIOR RESEARCH ENGINEER	GTRI-ATAS	9/1/05	EKKEHART O. RAUSCH	SENIOR RESEARCH SCIENTIST	GTRI-SEAL
4/2/05	MARTIN E. HARMON	BUILDING ATTENDANT	GTRI-RSO				
5/1/05	ERIC S. SJOBERG	PRINCIPAL RESEARCH ENGINEER	GTRI-SEAL				
5/1/05	DONALD E. CLARK	PRINCIPAL RESEARCH ENGINEER	GTRI-SEAL				

We Want to Hear from You!

The GTRI Communications Office welcomes and looks forward to your feedback on our new employee newsletter – the *GTRI Insider*. Based on your input, we'll make sure that we focus on topics and stories that matter to you. If you have news, ideas, or suggestions to share concerning stories and features you would like to see in future issues, please let us know

by completing and returning this form. You are also encouraged to nominate GTRI employees we can feature in the Up Close and Personal With... section of future issues.

You can fax completed forms to 404-894-9875 or send it via campus mail to Kathryn Knox in CRB 222A/mail code 0801. You can also E-mail your comments to gtrinsider@gtri.gatech.edu

Please print or type:

Name: _____

Lab/Department: _____

Phone (day): _____

Cell (optional): _____

E-mail: _____

Comments/Suggestions/Ideas: _____

My suggestion for a future employee profile in the "Up Close and Personal With" section is:

Employee's Name: _____ Lab/Department: _____