

# The GTRI Connector

## Did you Know...

All snow crystals are hexagonal.

In one second 6,242,000,000,000,000 electrons pass any given point in an electrical current.

When glass breaks the cracks move faster than 3,000 miles per hour.

—from *2000 Fascinating Facts* by David Louis

Vol. 10 • No. 1

Published Monthly for the Georgia Tech Research Institute Family

October 1993

## Economic Development Institute Introduced

By Lea McLees, RCT

Campus leaders and Economic Development Institute (EDI) employees introduced EDI to officials from around the state and presented their goals for the umbrella organization at a September 29 kick-off reception.

EDI, formed at the recommendation of Georgia Tech's Economic Development Council, will offer a single access point for those who need technical assistance or information, said acting director Wayne Hodges.

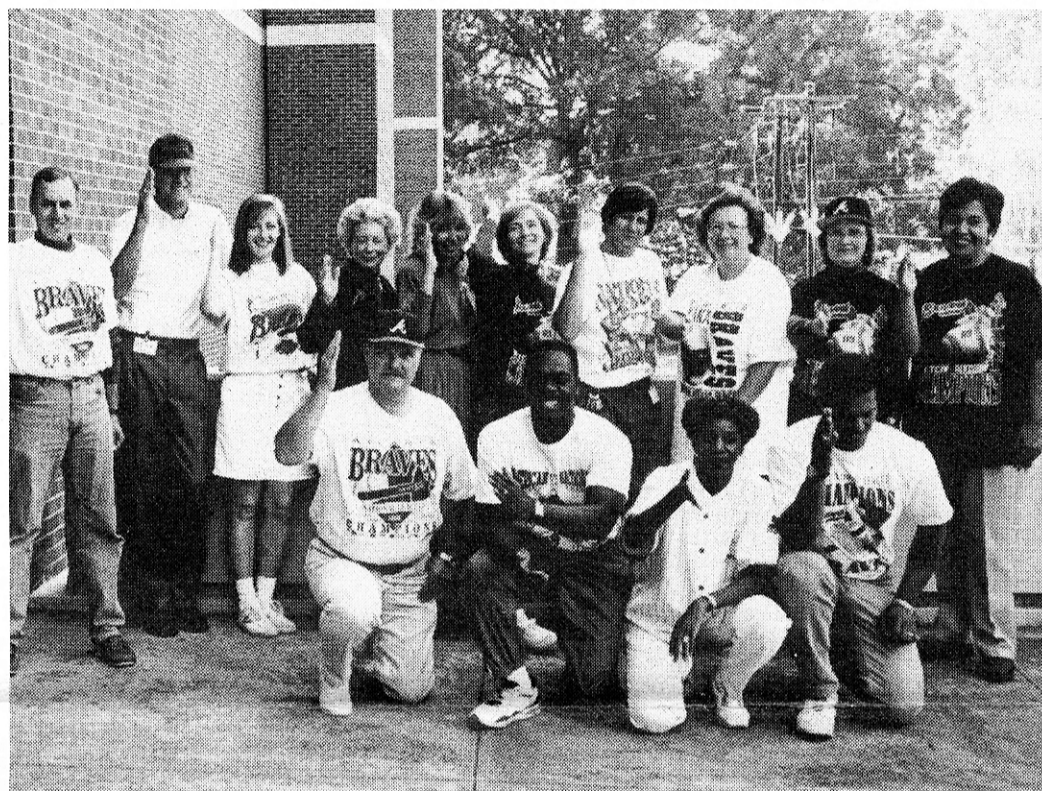
"We want to make it easier for those in economic development and industry to be able to find what they are looking for, whether it is engineering assistance or information about Georgia Tech," Hodges said.

Companies, communities, government agencies and other universities can call upon the expertise of EDI organizations: the Advanced Technology Center, Apparel Manufacturing Technology Center, Center for International Standards and Quality, Economic Development Research Program, EDA University Center Program, Energy Engineering Programs, Georgia Procurement Assistance Program, Georgia Productivity and Quality Center, Industrial Extension Service, and the Southeastern Trade Adjustment Center. These organizations include personnel from the Economic Development Lab and regional offices that were formerly part of GTRI.

GTRI will continue to play a role in economic development, said Georgia Tech President John Patrick Crecine.

"Many of our economic development activities are focused at GTRI," he said. "Their role in

*Continued on page 7*



*These valiant and spirited Baker Building employees organized a "Braves Spirit Day" as "America's Team" entered the National League playoffs. Despite all the chopping and cheering emanating from Baker, the Braves unfortunately lost their final playoff game to the Philadelphia Phillies 6-3. One thing is certain — our Baker folks are a shining example for Phillies fans who need lessons in good sportsmanship. Go Braves! Front, l-r: David Hipple, Wilbert Stewart, Katherine Brown, Danny Williams. Back, l-r: Mike Harris, Wayne Oblinger, Eliesh O'Neil, Dot Bush, Diane Smith, Lisa Detter-Hoskin, Paul Hawley, Sharon Mattson, Sheron Meyers, Arvilla Jennings. (Photo by Lea McLees)*

## GTRI's Strategic Plan: It's Not Just On Paper

By Lea McLees, RCT

Remember that bright yellow flier you got this summer? The one titled "Engineering Tomorrow's World," which featured GTRI's new strategic plan?

Now would be a good time to have your copy handy to check off some items. Three months into the plan, GTRI employees are

working on or have accomplished the following strategies and goals:

- **Strategy No. One, demonstrating top-down leadership commitment to quality** — GTRI was named one of five Quality Champions on campus this summer; 131 employees have completed "The Deming Approach to Total Quality Management (TQM)" course; and at least 12 GTRI employees, including Director Richard Truly, are enrolled in or auditing Jane Ammons' (ISYE) course in quality management.

- **Strategy No. 12, improve Georgia Tech administrative processes to achieve educational and research collaboration** — GTRI's members of the Tech Research Coordination Council are helping to write

*Continued on page 5*

## Observed & Noted

Meet the leaders of GTRI's support groups. Turn to page 2 to read their profiles.

■ Fred Cain is remembered by colleagues as a dedicated, straightforward per-

son. The story appears on page 2.

■ What is the future of overhead rates? See page 3 for the final installment of the rates series.

Charlotte Jacobs-Blecha's apparel manufacturing research may help motivate you to buy American more often. To find out how, and what the latest directions of her research are, see page 4.

■ Retiree Bill Livesay is still working away — he is turning his basement into a lab. To find out about his plans, turn to page 5.

■ Georgia Tech research continues to

make news in a variety of publications. See page 6 for a summary.

■ This month we begin a monthly feature on GTRI's new employees. Read about the

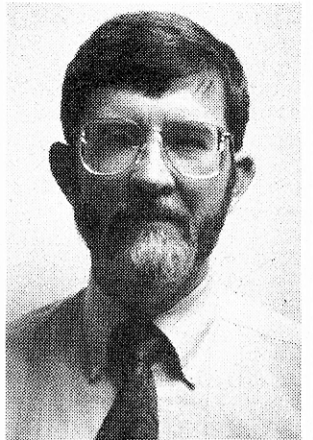
latest additions to the GTRI family on page 7.

■ As always, there is a lot of professional and personal news to catch up on. Turn to page 8 for these listings.



**News  
&  
Notes**

**Tom Brown**



**Evan Chastain**



**Robert Lang**



**Carolyn Mahaffey**



**Barbara Walsh**



**Meet the Leaders  
of the Support  
Groups**

**Tom Brown, Administrative Information Systems Team**

Holds doctorate in physics from Georgia Tech. Came to Tech in 1965 as a graduate research assistant. Also has served as a research scientist and director of numerous research projects. AIST's mission is to develop, implement, and maintain an administrative information technology infrastructure to support GTRI's research mission, goals, and strategies. Realizing AIST's goals involves continuous improvements in hardware, software and people: hardware in the form of a networked, client/server architecture; software in the form of a Database Management System (DBMS - Oracle) and user friendly applications that can access the wide variety of corporate information that can be made available via Oracle; and people throughout the organization trained and empowered to access such data over the network.

**W. Evan Chastain, Support Services**

Holds master's in electrical engineering

from University of Wyoming. Came to Georgia Tech in 1985. Has served as director of Radar and Instrumentation Development lab at GTRI. 1993 plans include helping GTRI meet its goals by providing improved support services. This group's goal is to continually improve individual processes, as well as integrate their teams for overall system improvements.

**Robert Lang, Research Security**

Holds associate's, bachelor's and master's degrees in criminal justice from Miami-Dade Junior College, Florida International University, and NOVA University, respectively. Came to Georgia Tech in 1988 to take current job. 1993 goals include providing a more customer-oriented, user-friendly Research Security Department (RSD); providing user access to RSD's extensive database files relative to classified document cataloging, visitor files and security education materials; integration of the building attendant function into a security system that starts at the front door; and providing first class security planning efforts for the Olympic Village.

**Carolyn Mahaffey, Management and Project Support**

Holds bachelor's in English literature, University of Richmond. Came to GTRI in

1979 as a lab business manager, a position she has held in three labs. Also has served as a financial management associate for GTRI/OOD. 1993 goals include implementing some GTRI-wide standard reports and processes that MAPS believes will provide greater efficiency and overall cost reduction; continuing to improve processes in MAPS area of influence to increase MAPS' value-added function and remove bureaucratic burdens from lab directors; conducting another customer survey; and involving all MAPS employees in a strategic planning session to establish long-term goals.

**Barbara Walsh, Fiscal Services**

Holds MBA in accounting from Georgia State, and is a CPA. Came to Georgia Tech as an administrative coordinator under Howard Dean in 1980. Also has served as executive assistant to the Vice President for Planning, Budget and Finance and as manager of Research Operations Analysis and Modeling. 1993 goals include continuing to address crises in the indirect cost environment, improving compliance with regulations, providing additional training on cost recovery system and accounting issues, and writing procedures in the accounting area.

*The "Selected Awards" feature will resume next month.*

**Cain Remembered As  
Dedicated,  
Straightforward**

**By Mark Hodges & Lea McLees, RCT**

Colleagues of GTRI employee Fred Cain remembered him this month as a strong, sincere individual.

"Fred preached being honest and straightforward, and he practiced it," recalled GTRI retiree Bruce Warren.

Cain, a principal research engineer, died October 12 at St. Joseph's Hospital after an eight-month battle with terminal lung cancer. A graduate of Georgia Tech with bachelor's and master's degrees in electrical engineering, Cain worked at GTRI for nearly 30 years.

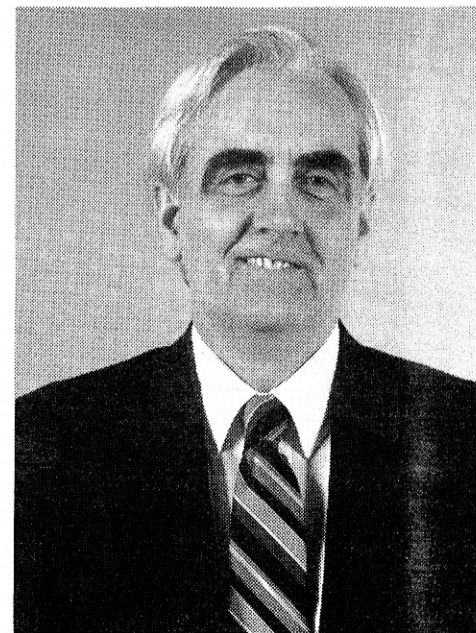
He began his career here in 1964. A specialist in antenna research and development, Cain had held a number of research and executive positions. He performed research in electromagnetics, particularly in the development of antennas for military applications and in the application of electromagnetics to biomedicine. He was widely known

for developing statistical techniques for characterizing the energy coupled between two spinning antennas, such as those used with radars.

In 1980 Cain became the director of the newly formed Electronics and Computer Systems Laboratory. Under his leadership this laboratory developed a national reputation for excellence in electromagnetic, communications, and computer systems and more than doubled in its original staffing and funding levels. During his career, he authored or co-authored 77 major reports and publications in electronics, communications and biomedicine.

More recently, he took charge of GTRI's efforts to incorporate Total Quality Management (TQM) principles and techniques to achieve improved efficiency in sponsored research and support activities.

"His dedication to quality and his drive to develop programs leading to the application of total quality principles to the university research environment have been major factors in Georgia Tech achieving national recognition for incorporating TQM into our operations and curricula," said Tim Gilmour, vice president for stra-



**Fred Cain**

tegic planning at Tech.

A memorial service for Cain was held at 1 p.m. October 15. Donations may be made in his honor to the American Cancer Society, with acknowledgements sent to his wife, Regina Cain, at 2551 Clairmont Road, N.E., Decatur, Ga. 30329.



## The Future of Overhead Rates

*This is the final installment of a three-part series explaining overhead rates, how they are figured, and why they are becoming increasingly complicated.*

By **Lea McLees, RCT**

Last month's article explained why Georgia Tech and the government began projecting overhead rates; how we began using the fixed-rate with carry-forward method of accounting for the rates; why Georgia Tech is being audited, and what that could mean. In this final installment, we define provisional and post-determined overhead rates. J.W. Dees, director of the Office of Contract Administration, explains why we have these types of overhead rates now and what their implications are.

### What Is A Provisional Overhead Rate, and What Are Its Implications?

Last month we noted that auditors from the Defense Contract Audit Agency (DCAA) have proposed to recover three years worth of "extra" overhead collections by Georgia Tech during one fiscal year. That possibility, combined with the overhead cap — a 26 percent limit on overhead that may be charged for administrative expenses, also imposed in response to the Stanford University scandal — influences the government to negotiate for an extremely low overhead rate, Dees said.

Because the intensive audits are still incomplete, the government would agree only to provisional, not permanent, overhead rates for FY93. The government also wanted the rates to be post-determined — finalized only after FY93 is over. This has required Georgia Tech to keep all projects "open" and to re-bill every invoice submitted during FY93, presenting an accounting nightmare,

Dees said.

"The re-billing also is a one-way street because if Georgia Tech over-bills, we will be required to refund the government even if the projects are completed," Dees said. "If, however, we under-billed, completed projects will have no budgeted funds from which Georgia Tech could recover lost income."

The FY94 rate was set on a provisional basis, as well, but is not planned to be post-determined. Georgia Tech submitted its FY94 rate proposal on June 30 and ONR accepted that, since negotiations had not begun and the proposed rates were deemed reasonable.

The fact that FY94 rates are provisional means that Georgia Tech and the government adopted temporary rates as of July 1 and will determine final rates later. When final rates are determined, Georgia Tech then will have to re-bill projects which accrued costs during the preliminary rate period.

"If the final rate is not set quickly, many of the programs will have been completed," Dees said. "Again, we claim this is a one-way street. This is the same as a fixed-rate with carry-forward situation. The problem is exacerbated by the carry-forwards from FY's 87, 88, and 89 to FY94."

### What Does the Future Hold for Overhead Rates?

Dees and his staff hope to negotiate Georgia Tech's return to the days of pre-determined, multi-year rates like those discussed earlier in this series of articles. In the meantime, they are working on compromises that they hope will be accepted by the government, to ease the overhead rate dilemma.

Dees sees a lot of room for improvement in setting and collecting overhead. Historically, universities recover less than 80 percent of actual indirect costs. This happens because some agencies and foundations do not pay overhead, or they pay lower rates. Additionally, Georgia Tech recovers overhead only

from external sponsors. Tech does not receive overhead on the internal research sponsored via E-funds. However, the government requires that such funds be included when calculating the overhead rates.

Also reducing overhead recovery are waivers of overhead, which are fairly frequently requested by faculty, Dees said. The administration, for obvious reasons, is more reluctant than ever to approve such waivers. Cost-sharing — when Georgia Tech and the sponsor share some of the costs of a research project — also is becoming a problem. Those figures become part of modified total direct costs — the denominator of the fraction used to calculate overhead rates. Increases in the denominator lower Georgia Tech's recovery rates.

At Georgia Tech, resident instruction recovers indirect costs against only about 60 percent of modified total direct costs. For resident instruction units, say that indirect expenses, the numerator, equal \$20 million, for example. That represents actual costs. However, the resident instruction units recover only about \$12 million of that. GTRI probably recovers in the 95 percent range.

Dees and his staff are looking forward to the completion of all prior year DCAA audits so that uncertainty about future overhead rates will be eliminated.

"In the meantime, I need to solicit the patience and understanding of the research faculty during the very difficult negotiations that lie ahead," he said. "A lot of people at Georgia Tech, especially in GTRI Accounting and the Grants and Contracts Accounting office, have been making extraordinarily super efforts to deal with these audits. I want to express my appreciation for their hard work and dedication."

*If you would like copies of all three articles in this series explaining overhead rates, you may call Research Communications at 894-3444.*

## News & Notes

## Tech TQM Research Funded...

...by the research initiation/matching program sponsored through IBM's Total Quality Management grant to Georgia Tech:

- "Development of Improved Statistical Methods for Product and Manufacturing Process Design," Kwok-Leung Tsui (ISYE)
- "TQM Implementation Strategies and Firm Performance," Jerry Banks (ISYE) and Ned Ellington (GPQC)
- "The Role of Employee Performance Feedback in Implementing Effective Quality Programs," Charles K. Parsons (MGT) and David M. Herold (MGT)
- "Analysis of Late Deliverables Utilizing Statistical Methods and the Taguchi Quality Loss Function," Charlotte Batson (GTRI)
- "Development of a Customer-Driven Total Quality Research Agenda for Health Services Delivery," Justin Myrick (ISYE/HSRC), Russell G. Heikes (ISYE)



**Krish Abuja**



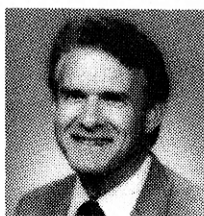
**Larry Corey**



**Devon Crowe**



**David Flowers**



**Bill Rhodes**



**Chris Summers**

## GTRI Fellows Named

Congratulations to the four employees above named to the GTRI Fellows Council in late September: **Krish Abuja** (AERO), four-year term; **Larry Corey** (SEAL), four-year; **David Flowers** (ELSYS), three-year; **Bill Rhodes** (EOEML/ECE), four-year.

**Devon Crowe** and **Chris Summers** (EOEML), who were appointed to three-year terms on August 17 by Director Richard Truly, round out the council.

The council members were chosen based on external recognition, campus collaboration, insight into national technology issues, and demonstrated success at GTRI.

As part of GTRI's strategic plan, they are charged with administering the GTRI Internal Research Program; assisting in technology forecasting and assessment; and working toward campus research collaboration goals stated in the plan.



## Profile & Insight

**Charlotte Jacobs-Blecha's logistics research interests include both apparel manufacturing and transportation. (Photo by Lea McLees)**

### Improving U.S. Apparel Manufacturing Productivity: Charlotte Jacobs-Blecha

By Lea McLees, RCO

Charlotte Jacobs-Blecha's work for the Defense Logistics Agency (DLA) will benefit more than the U.S. Armed Forces. Her work will help make the apparel industry more competitive, thus motivating you to buy American more often when you purchase a new shirt, for example, or invest in a winter coat.

Investigating logistics problems such as the DLA work Blecha has studied over the last four years can help U.S. apparel manufacturers improve productivity, and ultimately become more competitive.

"A retailer once placed orders for large numbers of the same garment, in different sizes and the same fabric," said Jacobs-Blecha, a senior research engineer (ITL). "The market today is short-term, and orders are short in number. You don't see large quantities of the same item hanging in stores anymore. Manufacturers have to be able to respond quickly to this type of market, and to keep their costs at a level to remain in contention as a supplier to the retailer."

The DLA is interested in improving apparel manufacturing in the United States for another reason, however. "The U.S. government is the largest consumer of apparel goods in the United States," Jacobs-Blecha said, "due primarily to providing uniforms for our military personnel."

Many apparel manufacturing firms have found low wages an attractive magnet for moving their facilities to foreign countries, and overseas competitors have taken over a large share of the U.S. market. DLA is interested in helping U.S. firms improve their stability, since ordering military uniforms from foreigners during wartime might not be possible.

Among the problems the apparel industry is working to overcome are inefficient methods of material handling and manufacturing and a lack of updated technology.

Jacobs-Blecha's work addressed material handling and manufacturing processes. The first process she studied was marker making — preparing a plan for laying pattern pieces on material before cutting. The challenge is to design the marker for the most efficient use of the fabric. Jacobs-Blecha and Principal Research Associate William Riall (EDI) studied the economic and technical feasibility of automating marker making, which can now at best be done in a CAD/CAM environment with hand-edited of final results by a human operator.

They determined that automation is feasible, but only with traditional methods incorporated into an intelligent system that can address the spatial aspects of the problem. Also, economic justification must be made using nontraditional means. Efforts to create automated marker making solutions are in progress at North Carolina State University and other places.

Her second apparel project for DLA addressed the cut order planning problem, which involves determining how the fabric will be laid out on the cutting table and which pattern pieces will be used in various sections of the cut. This work was done in conjunction with Associate Professor Jane Ammons (ISYE) and Research Scientist Terri Smith (ITL).

"We developed heuristic methods for solving the problem effectively and efficiently," she said. The first algorithm is a 'greedy' method, where



the first- and second-most numerous sizes in the order are placed in a section first, then repeats until all sizes are assigned to a section. The second is a savings-type algorithm, where pieces are combined into a section based on fabric saved over keeping them in separate sections. A third method takes an existing solution and uses the savings concept to make improvements in the original solution.

Jacobs-Blecha is continuing this work through the National Textile Center. She is expanding the original model to integrate the marker making and cut order planning processes, and to schedule the resources in the cutting room (manual or automated cutters, cutting tables, raw materials, operators, and such).

Jacobs-Blecha directed a third project for DLA which addresses flexible work group methods, also known as modular manufacturing. Other researchers on this project included Regents Prof. Don Ratliff (ISYE), Professor John Bartholdi (ISYE), Research Engineer Richard Carey (EOEML) and Don Eisenstein, who wrote his doctoral dissertation based on this project and is now at the University of Chicago. This manufacturing method calls for workers on a traditional assembly line to be arranged into small teams. A team is assigned a full garment or some piece of the garment to produce. For example, one team may produce the front of a pair of pants, one team may produce the back, and a third might assemble the finished backs and fronts.

Instead of each operator performing the same task over and over, the team members are cross-trained in several of the operations needed to perform the group's task. The teams are compensated for team productivity and quality, rather than for the number of pieces they individually produce. The workers are arranged with the fastest worker at the head of the line, the second-fastest worker next, and so on, until the slowest worker starts the line by introducing new units into the line's production. The team then uses the Toyota assembly line method of pulling the work down the line, rather than having the work pushed at them, as on the traditional assembly line.

After four years of performing research on logistics problems in the apparel industry, Jacobs-Blecha now is working more with transportation logistics problems. She organized "An Introduction to Intelligent Vehicle Highway Systems," a short course offered in October by the Transportation Research and Education Center and the Logistics Institute. She also is assisting Georgia Tech in taking a fresh look at its own transportation and parking system, and has begun conversations with

a group of business and governmental agencies from the Midtown Atlanta area to discuss transportation problems shared by the group and Georgia Tech.

"Transportation systems as we know them today will fast become obsolete as we are forced to deal with issues of physical space, the environment and energy resources," Jacobs-Blecha said. "Indeed, a transportation revolution is coming in the twenty-first century."

### RCT Launches Bulletin Board Service Providing Information on Georgia Research

By John Toon, RCT

With help from GTRI's communications specialists, the Research Communications Team (RCT) has launched a dial-up computer bulletin board service designed to help the news media and other interested groups learn more about research being done in Georgia.

Called the "Georgia Research Line," the service includes news and information on research programs at Georgia Tech, the University of Georgia, Emory University, the Medical College of Georgia and Georgia State University. The service is believed to be the first offering one-stop access to information from multiple public and private institutions on a state-wide basis.

In its first month of operation, the Georgia Research Line fielded calls from more than 100 users — including *Business Week*, *Scientific American*, the Associated Press, *Science*, Cable News Network, *Photonics Spectra*, *Dallas Morning News*, *Design News*, *EDN*, *American Scientist*, *Popular Mechanics* and others.

Users with a personal computer, modem and communications software can dial into the Georgia Research Line to view or download news releases, magazine articles and related information. Telephone numbers are 894-8268 for 1200 and 2400 baud service and 894-6985 for 9600, 2400 and 1200 baud service. At present, the Georgia Research Line is not accessible from the campus network.

Research Engineer Mike Witten of the Information Technology and Telecommunications Laboratory (ITL) designed and installed the system. John Toon and Dirk Holcomb (RCT) are the system operators.



## Retiree Doesn't Rest — Livesay Builds Home Lab

By Lea McLees, RCT

*After Bill Livesay retired from GTRI early this summer, several employees requested a CONNECTOR article about him. He is a busy guy! Here's what we found out when we finally caught up with him in late September.*

Anybody who expected Bill Livesay to spend his retirement relaxing should stop by the researcher's Roswell home and check out the basement.

It would look familiar to most of us at GTRI — Bill and Ann Livesay's basement is becoming a research lab. Those who know the principal research scientist will understand why he is building a home lab.

"I have had a lot of fun working — I've been eligible for retirement for six years, but I was doing some research that was so fun, I didn't want to leave," he said.

For those who are new to GTRI and never met Livesay, he spent 35 years at Georgia Tech either teaching or working with GTRI and its predecessor organizations. He worked on a wide variety of projects, many of them addressing micromechanics — designing, building and working with tiny electro-mechanical devices such as computer chips.

In his home lab he will be building custom micromechanics machines to help people exactly measure the precise attributes of all sorts of materials.

"I will also do service measurements for people, so I can better understand industry problems and develop better instruments," he said. "I hope to do some cooperative research with people both at Tech and other organizations — except that to go to work, I'll just walk downstairs."

Livesay has been building instruments to measure exactly what he wanted since he began his career at Tech in 1958.

"I started building instruments because the ones I needed just didn't exist," he said. "By definition, they were state-of-the-art. They now have applications that never occurred to me then."

For example, he devised an instrument that could measure the strength of thin, single metal crystals without bending them — even though the crystals were so fragile that they warped when gently cleaned with water.

"The textile people used to come over all the time and measure fibers with that same instrument — they called it the 'fiber measurer,'" he said.

Livesay is known among his GTRI colleagues for the wide variety of research he has done. He believes his most important work addressed hydrogen fuel and how to store it safely.

"I feel that it was extremely crucial — the most important work you can do today is figure out our energy problems," he said. "Experts estimate that we have about 35 years worth of natural gas left in the U.S., and even less petroleum, at the rate we are using it now."

"Hydrogen turns out to be a very neat fuel," he says. "When you split it to get hydrogen for energy and then recombine it, you get pure water, so you are doing zero damage to the environment. But there are many critical problems to work out before hydrogen can become the fuel of choice."

Livesay says the most unusual work he was involved in at GTRI was development of magnetic intrauterine birth control device (IUD). Much of his work during the last couple of decades has concerned investigations of micromechanics and other mechanisms determining the reliability and durability of microcircuits' very tiny material features. He most recently helped define a micromechanics mechanism as involved with electromigration degradation of microcircuits. He investigated thin magnetic materials during his career at Tech.

Livesay also studied the mechanical properties of small hooks that anchor interocular lenses sewn into the eyes, and the friction between individual cotton fibers in garments.

"The reason we like to wear cotton is because of its frictional characteristics," he said. "The sponsors used the measurements to understand how cotton interacts with things, and what kind of friction is needed in a garment to make it feel good."

Livesay liked working at GTRI because it allowed him to search for answers to a variety of problems.

"At GTRI you have the freedom of conceiv-

ing a project, going out and finding a sponsor, and then doing it," he said. "I enjoyed that."

For now, he's looking forward to completion of his home lab — but he may not be working there too long. Demand for his instruments is growing, and he is always finding new projects that pique his interest.

"Probably within two or three years I'll be forced to move out of my basement," he said.

### Strategic Plan

From page 1

Tech's research strategy, including in that document processes encouraging GTRI/academic/Office of Interdisciplinary Programs (OIP) collaborations.

• **Strategy No. 26, improve the cost-effectiveness of research support throughout GTRI** — In reorganizing research support and financial services, GTRI has reduced staff and cut costs through attrition and reassignment of staff and/or their functions to direct-charge activities. The savings resulting from these efforts are estimated at about 10 percent compared to the FY93 operating expenditures, and were accomplished without cutting back any key services. Opportunities for cost reductions will continue to be investigated as experience dictates the proper balance between capacity and need in our laboratory research operations.

• **Strategy No. 25, activate a council of GTRI Fellows to recommend technology directions** — Council members were named in late September (see related item, p. 3), met for the first time on October 8 with Truly and then on October 18 with Jim Cofer.

• **Strategy No. 27, provide internal resources to encourage and support new research efforts** — The GTRI Fellows began reviewing 35 proposals for internal funding this month.

• **Quality Goal No. One, defining key processes and activating process action teams** — Charlie Brown and others are defining key processes now and will share their work in a future CONNECTOR issue.

• **Research Goal No. One, prepare and use methods of technology forecasting and research market analysis, including self-assessment and customer surveys** — a draft methodology including all four efforts is under development and will result in annual reports to Truly.

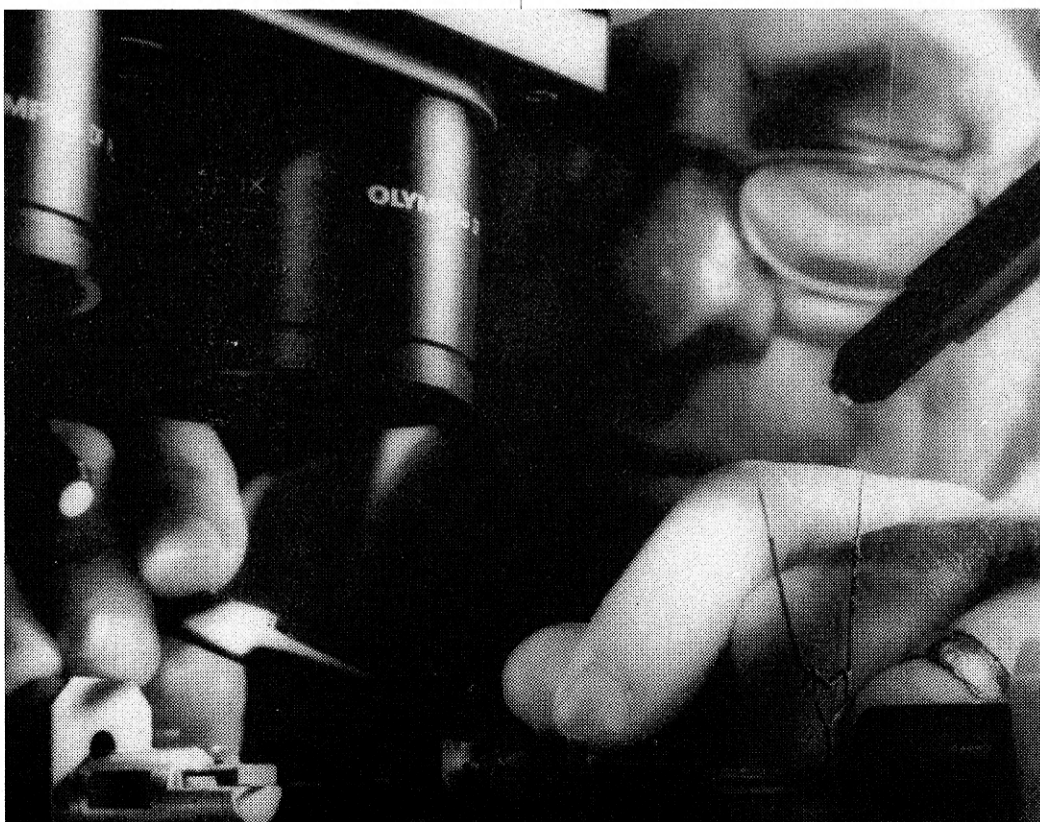
• **Research Goal No. Three, develop expanded research program addressing society's emerging technological needs** — the Advanced Concepts Office led by Jim Cofer was created as a first step toward this goal.

• **Campus Collaboration Goal No. Two, increase collaborative programs with academic units/interdisciplinary centers** — This goal is being pursued through membership on Georgia Tech's Research Coordination Council (Truly and Principal Research Scientist Chris Summers); and membership on Tech's Electrical Engineering Research Council (Chief Scientist Devon Crowe and Program Development Office Director Don Wilmot). Contacts with academic schools each week and the work of the GTRI Fellows Council will contribute, as well.

*This is just a sample of strategic planning activities in progress. Look for additional updates in future issues. If you or your colleagues are pursuing activities related to strategic plan goals, call Lea McLees (RCT) at 894-3444. For additional copies of the strategic plan, you may call DW Senn (RCT) at the same number.*

## Profile & Insight

*Researcher Bill Livesay has not stopped working just because he retired this summer. This energetic researcher is building a lab in his basement. (Photo by Gary Meek)*





# News & Notes

## Research in the News

During August, news about Georgia Tech research appeared in more than 57 publications with a combined circulation of 10.9 million subscribers. Highlights of those media placements are shown below, with circulation statistics from the publications cited:

- Research on **methods for protecting traffic signals** from EMI damage continued to gain attention with articles in *Design News* (170,000), *CEE News* (105,120), and *Interconnection Technology* (35,000). The work by John Rohrbaugh and others in the Sensors and Electromagnetic Applications Lab (SEAL) of GTRI has been seen by 1.5 million readers.
- A study of how **rudimentary communication** among robots can improve their interaction was described in *Popular Mechanics* (1,623,566), *Manufacturing Engineering* (111,749), *Quality* (96,053), and *IEEE Expert* (15,535). The research, led by Ron Arkin in the College of Computing, has reached more than 1.8 million readers.
- *Industry Week* (288,000) published a brief article and a Georgia Tech color photograph about research on **multichip modules** in the Microelectronics Research Center. The work is

being led by Paul Kohl of the School of Chemical Engineering.

- Collaborative research on **X-ray tomographic microscopy**, involving two Georgia Tech researchers and scientists at both Lawrence Livermore National Laboratory and Sandia National Laboratory, continued to gain attention. The work was described in *Advanced Materials and Processes* (53,162), *Design News* (166,680), *Quality* (96,053), *Advanced Composites* (25,000), *Materials Performance* (17,500), and *Ceramic Industry* (11,000). Information about the work — involving Tom Starr in the Electro-optics, Environment and Materials Laboratory (EOEML) of GTRI and Stuart Stock and Mark Butts in the School of Materials Engineering — has now been seen by more than 1.4 million readers. The news grew out of a report published in *Science*.
- *Chemical Week* (50,000) described a project in GTRI's Electro-optics, Environment and Materials Lab (EOEML) on Mario Occelli's study of **fluid cracking catalysts**. The study was presented at the American Chemical Society's recent meeting.
- Work by John Daher and Glenn Champion on the **EMI of photonic devices** was the subject of articles in *Science News* (250,000), *C3I News*, and *Inside R&D*. The work was done in the Sensors and Electro-

magnetic Applications Lab (SEAL).

- *Microwaves & RF* (61,114) published an article on GTRI's efforts to **expand its defense expertise** to additional civilian applications.
  - *Science News* (250,000) published an article on the effects of **superheated crystalline surfaces**. The work was based on molecular dynamics simulations done in the School of Physics by Hannu Hakkinen and Uzi Landman.
  - In local news, *The Atlanta Business Chronicle* (35,000) reported on Georgia Tech's involvement with the **contract to manage Sandia National Laboratory**, while *The Atlanta Journal-Constitution* (505,000) described the potential impact of **unexpected licensing fees** on Georgia Tech's Nuclear Reactor.
- News releases and magazine articles produced by the Research Communications Team are available in Georgia Tech's Internet Gopher under the "Research News & Information" directory. The text of material available in the user-friendly Gopher can be downloaded for use in other documents, and the Gopher is capable of full-text keyword searches. For more information about using the Gopher, call RCT at 894-6987 or 894-6986.

**Baker Building employees gathered recently to wish administrative assistant Gail Tucker "bon voyage" on her move across the street to CRB. Known as "Mother Tucker" around GTRI, Gail is loved and appreciated for her wit, friendly personality and helpfulness. She also tells some great GTRI stories. It may be time for a "Welcome, Gail!" party in CRB soon!**  
**L-R: Rich Combes, Ginny Myers, Brenda Hill, Vickie Fennell, Delora Gould, Bain Tucker, Devon Crowe, Sharon Mattson.**  
**(Photo by Lea McLees)**



## Insurance Details Forthcoming

By Lea McLees, RCT

Keep an eye on those mailboxes — complete information on the new health benefit plan offered through the Board of Regents will arrive in November.

The plan, administered by Blue Cross and Blue Shield, takes effect January 1, 1994. It resulted from the Board's decision to consolidate the four health benefit plans offered throughout the university system. In the past the Regents had four health plans in place: the Board of Regents, the University of Georgia, the Medical College of Georgia and the Augusta College plans. Blue Cross administered all but the Board of Regents plan, which was overseen by Aetna, and each company served about 15,300 retirees

and employees.

Blue Cross was selected through a bidding process as administrator of the new plan. Cost Care, Inc.'s bid was accepted for medical utilization review services, which include pre-certification and concurrent review of hospital confinements, as well as medical and psychiatric care management. The selection of health-maintenance organizations is pending, and Georgia Tech's Office of Human Resources will provide information on that as soon as it becomes available, said Georgia Tech benefits manager John Grovenstein.

Consolidating the plans will save the university system money on medical costs — \$900,000 during the first year, Grovenstein noted.

Preliminary information on the changes in the Board of Regents' traditional insurance plan was mailed to all participants in late September. The new plan is in part based on a survey of the benefits provided by large public and private employers in

the Southeast.

The changes in the plan are minimal, Grovenstein said. Among the initial details of the new plan:

- ◆ Individual deductible(s) will change from \$150 inpatient and \$150 outpatient per person per year to a \$200 per person comprehensive deductible.
- ◆ The family maximum deductible will change from a \$450 inpatient and a \$450 outpatient deductible to a maximum combined family deductible of \$400.
- ◆ The three-month carryover deductible feature of the plan will be eliminated.
- ◆ The amount to qualify for stop loss benefits will change from \$5,000 in eligible expenses to \$1,000 in out-of-pocket expenses.
- ◆ The period that stop loss benefits will be in effect will change from 12 months following the month in which the stop loss amount is satisfied to the end of the calendar year in which the stop loss amount is satisfied. The family stop loss amount will be established at \$2,000.

◆ Wellness benefits will be increased from \$200 to \$500 and will be paid at 100 percent rather than at 80 percent following the satisfaction of a deductible.

◆ Outpatient emergency medical expenses incurred in connection with an accidental injury will be paid at 100 percent, rather than at 80 percent following satisfaction of a deductible.

◆ Charges for surgical procedures will be paid at 90 percent. Currently, inpatient surgery is paid at 80 percent while certain outpatient surgery is paid at 100 percent.

If you did not receive the preliminary information on the new plan in late September — or if you have questions about the changes — you may call the Benefits Department at 894-8373; 894-8627; 894-3958; or 894-8374.







## Focus on Folks

**Bob Cassanova (AERO) recently won three photographic awards in the Annual Photo Salon of the Dogwood City Grotto, a local cave exploration club. He won "Best of the Show" for a black-and-white photo of "Stephen Gap," "Best Black-and-White Photo" for "Sunlight in Stephen's Gap," and "Best Close-up" for a slide of a "Crystal Formation with Water Droplet." (Photo by Anita Edwards)**

The GTRI Connector  
Vol.10 No. 1 October 1993

Published by the Research Communications Office, Centennial Research Building, Georgia Institute of Technology, Atlanta, GA 30332. Georgia Tech is a unit of the University System of Georgia. The deadline for submitting copy is the first Tuesday of each month.

### EDITOR

Lea McLees, RCT  
853-9079

### GRAPHIC DESIGN

Mark Hodges, RCT  
894-6987  
Charlotte Doughty, RCT  
894-6965

### EDITORIAL REVIEW

Patrick O'Hare, OOD  
894-3490

### ASSOCIATE EDITORS

Michele Brown, CRB  
853-0486  
Carey Floyd, Cobb 1  
528-7012  
Wendy Hanigofsky, CRB  
894-7136  
Maggie Harrison, Cobb 2  
528-7826  
Eunice Kelsey, Services  
894-6972  
Joanna King, Baker  
853-0460  
Valli McNear, O'Keefe  
894-8284  
Paula Nolan, ERB  
894-3523  
Janice Porter, VP & D  
894-3401



This publication is printed in part on recycled paper.

## Professional Activities

### Director

**Richard Truly** spoke at the IEEE-USA Technology Policy Council Symposium September 22 in Washington, D.C. The symposium addressed technology transfer between universities, federal facilities and private industry.

### Electronic Systems Laboratory

**Anne Forrest** attended the Antennas Applications Symposium September 21-24 in Champaign-Urbana, Ill., where a paper that she co-authored with **Mary Ann Ingram** (ECE) was presented. The paper addressed "The Efficiency of Orthogonal Transform Domain Adaptive Processors for Multichannel Wideband Arrays."

### Electro-optics, Environment and Materials Laboratory

**Steve Hays** spoke to the North Georgia Plumbing Contractors Association on September 23 in Athens. The topic was "Construction Safety in the 90s." In addition, he is writing a monthly safety and health column in the magazine *Dixie Contractor*.

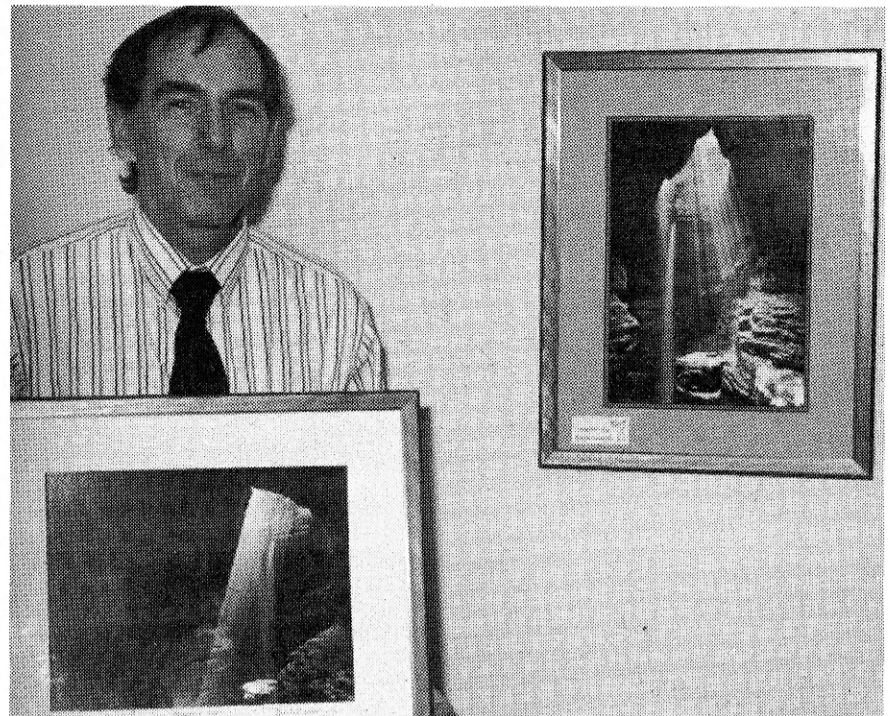
**John Nemeth** has been elected vice chairman of the Georgia Department of Labor's State Hazardous Chemicals Technical Committee. He also has been named a member of the Academic Advisory Council for the Division of Environmental and Occupational Health at Emory University's School of Public Health. In addition, Nemeth accepted an award for service to Georgia and its governor, based on his assistance to the Hazardous Waste Management Authority — he was named Lt. Col., Aide DeCamp, Governor's Staff. Finally, Nemeth was luncheon speaker for the Professional Environmental Marketing Association on October 18 at Tabor & McCourt restaurant on Powers Ferry Road.

The National Academy of Sciences National Research Council asked **Dave Schmieder** to serve on its Research Associate Program Evaluation Panel, which met September 15-16 in Detroit, Mich.

### Sensors and Electromagnetic Applications Laboratory

**Neal Alexander** attended the NASA Fifth (and final) Combined Manufacturers and Technologists Airborne Wind Shear Review Meeting in Hampton, Va., September 28-30. A paper entitled "Evaluation of Candidate MMW Sensors for Synthetic Vision," co-authored by Alexander, **Brian Hudson** (SDL), and **Jim Echard** (SEAL), was presented.

**Scott Goldstein** (SEAL), **Mary Ann Ingram** (ECE), **Paul Anderson** (ECE) and **Anne Forrest** (ELSYS) attended the USAF Symposium on Antenna Applications in Allerton Park, Ill., during September. The presented a paper on "The Efficiency of Orthogonal Transform Domain Adaptive Array Processors."



**Theodore Courtney** has terminated.

### Sensors and Electromagnetic Applications Lab

**Roland Stebbins** and **Scott Tippens** have terminated.

### Signatures Technology Lab

**James Dupree** joined the lab in September.

## Personal Notes

### Cradle Roll

Jan and **Robert Harold Carnesi, Jr.** (HRO) welcomed a son, Robert Harold Carnesi III (Trey), on September 2. Trey is their first child.

### Get Well Wishes

... to **Bud Sears** (ELSYS), who had quadruple bypass surgery at the end of September at St. Joseph's Hospital. The surgery went well and he was recovering at home as of our deadline. He was expected to be back to work in a month or so. Please keep Bud in your thoughts as he progresses toward a full and complete recovery.

### Our Sympathy

...to **Julian Price** (SDL) on the October 5 death of his mother, Easter Price.  
...to **Mary Ann Burke** (AIST) upon the October 12 death of her grandfather, "Doc" John Freeman.  
...to **Lee Hughey** (AIST) upon the October death of his father-in-law, Edward C. Jordan.  
...to **Tony White** (AIST), on the October death of his father-in-law, Rhuel Johnson, Sr.

## Personnel News

### Systems Development Lab

**Denver York** and **Thomas Cook** have begun work as GRA's.  
**Ralph Brooks**, **Larry Sollars** and **Donald Strausberger** have terminated.

### Electronic Systems Lab

**Brian D. Lowry** and **Ken Merry** have begun work as a Fall/Spring co-ops.  
**Georgi Dagnall** and **Marquis Jones** are new GRA's.  
**Dan Bartrum** is a new student assistant.  
**Robert Zobel**, formerly a co-op student, was hired in September.  
**George Brown** joined the lab temporarily in June. He is assisting on the JSTARS program.  
**Eugene Lowe** and **Mike Minardi** have terminated.

### Electro-optics, Environment and Materials Lab

**Robert Schwerzel** joined the lab in September.

Georgia Tech  
RESEARCH INSTITUTE