

The GTRI Connector

Did You Know...

The temperature of the earth's interior increases by 1 degree every 60 feet down.

A person uses more household energy shaving with a hand razor at a sink (because of the water power, the water pump, and so on) than he would by using an electric razor.

-- from 2210 Fascinating Facts by David Louis

Vol. 11 • No. 4

Published Monthly for the Georgia Tech Research Institute Family

February 1995

Olympian Task: 'FutureNet' Will Boost Campus Bandwidth

by Rick Robinson, RCT

The 1996 Olympic Games are bringing more than new buildings to Georgia Tech. A broad new expressway will soon twist through campus, producing major changes.

Yet no trees will fall as a result. This thoroughfare, dubbed FutureNet, will be nearly invisible — built mainly of fiber optic cable. Its goal: Provide first-class data, voice and video connections for Tech, while at the same time satisfying Olympic communication needs.

For some time Tech planners in Office of Information Technology (OIT) have reasoned that since BellSouth crews will soon be pulling miles of AT&T fiber around campus (both companies are Olympic sponsors), there would be clear economies in installing enough fiber for Tech's future needs at the same time.

"We believe [FutureNet] will be a leading-edge network" rivalling such commercial efforts as the Time Warner project currently under way in Orlando, Fla., says Peter Freeman, dean of Tech's College of Computing and Tech's chief information officer.

FutureNet planning has been ongoing for some time. Ron Hutchins, director of Network Services in OIT, began initial

Continued on page 2



AERO co-op student Kurt Niebur, left, and researcher Bob Englar test the take off and landing aerodynamics of a generic High Speed Civil Transport model for NASA-Langley. They performed the tests during February in the GTRI Model Test Facility research wind tunnel at Cobb County. (Photo by Anita Edwards)

"Brown Bag with the Boss" Meetings Scheduled for March

GTRI employees are invited to attend Brown Bag with the Boss, a series of informal town hall discussions with Richard Truly.

The six meetings scheduled from noon to 1 p.m. will be held in several different locations throughout March:

- March 7 in ERB Rm. 116 for ERB employees whose last names began with A-L;
- March 15 in the Cobb County Bldg. 1 large conference room for employees working in CCRF buildings 1, 2 and 3;
- March 17 in ERB Rm. 116 for ERB employees whose last names begin with M-Z;

• March 23 in Baker Rm. 241 for Baker employees;

• March 24 in CRB 119 for CRB, Research Area 2, Hinman, C. Emerson and any other employees;

• March 29 in the Cobb County Bldg. 1 large conference room for employees working in CCRF buildings 4 and 5; and,

• March 31 in O'Keefe Rm. 136 for O'Keefe employees.

Truly will make brief introductory comments before the open discussion period. Participants are invited to bring questions, comments and lunch.

To reduce the chances of overcrowding, suggested attendees for each meeting have been designated by building. However, employees are welcome to attend alternate sessions to avoid schedule conflicts.

Observed & Noted

Find out about you colleagues' latest projects. Turn to page 2 for a list of selected contracts.

Supply Services is an integral part of daily life at GTRI. Meet the staff on page 2.

German researcher Jens Tomm is re-

turning to his homeland soon, but his collaboration with EOEML colleagues will continue. Find out what they're working on by turning to page 3.

Know an outstanding faculty member? You can learn how to nominate that person for a

faculty award on page 3.

We're updating internal research projects. Read about two more on page 4.

If you want to do biomedical research with an Emory colleague, research grants are

available. Get the specifics on page 4.

GTRI is on the World Wide Web. To find out more about the Web and what GTRI has put there, turn to page 5.

AERO colleagues recently received a complimentary

letter. Share the commendations on page 6.

That outdated, personally owned computer equipment you have could benefit some elementary school students. Ed Soniat tells you how on page 6.

GTRIers have several new colleagues. Meet three of them on page 7.

The latest professional, personal and personnel news appears on the back page. Catch up with what your colleagues are doing by turning to page 8.

News & Notes

The Supply Services staff includes, left to right, Carol Croy, DeeAnn Reese, Julie Sinor, Angela Nelson, Erma Johnson, Janice Fallings, Sandy Lashmit, Mary Granger, LaVerne Spearman, Sheryl Holland, Dave Evans and Martha Farley. (Photo by Rick Robinson)

FutureNet

From page 1

design thinking two years ago. Moreover, FutureNet construction will continue long after the games. By the year 2000 or so, Freeman says, "the intention is that every room on campus — every dorm room, every office, every laboratory, every classroom" will be connected.

By then users will plug into a number of advanced services: ISDN-type voice capacity; data-transfer speeds in the range of 155 megabits per second (Mbps), far faster than today's pervasive 10 Mbps Ethernet; and full-motion videoconferencing. Freeman believes video service will be "the biggest and most visible new technology on campus," largely because the ability to videoconference most campus locations will be a new experience for Tech.

Properly speaking, FutureNet is an upgrade to Tech's telecommunications infrastructure, not a new system. Fiber currently runs between many campus buildings in a network known as the campus backbone. "Think of it as water pipes," Freeman says. "Right now we've got a 1-inch line that connects buildings on campus, and what we need is a 12-inch line."

But FutureNet will provide only access, not applications. It won't furnish end-equipment such as workstations or TV sets, nor will it develop content. "What we're building is the highway — what kind of car you drive down that highway is up to you," the dean emphasizes.

FutureNet will kick off when a proposed agreement between Georgia Tech and the Atlanta Committee for the Olympic Games (ACOG) is complete. It's anticipated the agreement will be approved this month by the University System of Georgia Board of Regents.

Continued on page 7



GTRI Supply Services: Don't Do Contract Purchasing Without Them

Supply Services is GTRI's gateway to the world — at least the world of obtaining goods and services. GTRI employees purchasing goods or services to fulfill contractual obligations can get advice, along with the necessary paperwork support, from Supply Services.

"We facilitate the materials acquisition process for GTRI staff and project personnel," says Martha Farley, the department's manager.

Supply Services' 12 staffers act as liaisons and advocates for GTRI's research personnel through interface with vendors, Georgia Tech's Purchasing and Accounts Payable departments, and the Office of Contract Administration. Among specific duties are providing advice and assistance to GTRI personnel on goods and services acquisitions; processing invoices from vendors and subcontractors; resolving invoice discrepancies; expediting orders; processing returns to vendors of goods in need of repair or replacement; assigning purchase order numbers to orders; and providing general problem solving and troubleshooting services.

The Supply Service folks also monitor

compliance with state and federal rules and regulations, and advise GTRI staff on such compliance issues. Supply Services, which is part of the Support Services department, also verifies and monitors the accuracy of GTRI encumbrances and liabilities.

The fact that Supply Services processes GTRI's orders for goods and services and also assigns purchase order numbers can sometimes lead to confusion, Martha Farley says.

"Everything we do is supportive of the material acquisition process; however, we do virtually no purchasing," she said. "That is generally handled either by the researchers themselves for orders under \$300 after obtaining purchase order numbers from us, or by Georgia Tech's Purchasing Department."

Reflecting on Supply Services' mission, Martha says, "We'll do anything we can to make sure project personnel get what they need to meet contract obligations. We know that we are here to support GTRI's staff, and we want them to be successful. Part of that success involves delivery of goods on time and within budget. We take our role as providers of purchase support and assistance very seriously."

For information or assistance from Supply Services, you may call 894-3440.

SELECTED JANUARY 1995 AWARDS

Title	PI/Laboratory	Sponsor	Funded Amount
Israeli Air Force H-53 Data Processing and Analysis Program	Crawford, C. (AERO)	Air Force	25,000
Development of Sensor System to Monitor Ammonia	Schwerzel, R. (EOEML)	Photonic Sensor Systems Inc.	337,618
SXI Phosphor Study - 2A	Robinson, W. (EOEML)	NASA	22,295
High Density Microwave Packaging for Next Generation Aircraft & Space-Based...	Harris, M. (EOEML)	Air Force	150,000
Corps Sam System Functional Analysis Support	Dalton, J. (HRO)	Army	99,491
Hawk/AMRAAM Feasibility Firing Weapon System Controller Requirements	Dowdy, P. (HRO)	Army	69,264
R-412A Analysis Task	Wilson, B. (ITL)	Army	239,944
System Engineering Support to Comanche Program	Grover, J. (ITL)	Rail Co.	44,187
Office of Materials & Research Laboratory Information Sys. Design	Huggins, D. (ITL)	Ga. Dept. of Transportation	186,264
High Data Rate Local Area Networking	Witten, M. (ITL)	Army	222,902
Optical Adjunct, XM-15S & XM-43S Systems	Muzio, R. (SDL)	Army	289,826
Antenna & Transmitter Evaluation	Adams, J. (SEAL)	Dynetics Inc.	307,151
Surface-to-Air Missile Subsystem Design	Adams, J. (SEAL)	Dynetics Inc.	65,360
Frequency Discriminating EM Field Sensor Having All Optical Interconnects.	Rohrbaugh, J. (SEAL)	Air Force	100,000
Antennas in Structural Composites	Weaver, E. (SEAL)	Navy	899,955
Electromagnetic Environmental Generating System	Clark, D. (SEAL)	Navy	1,000,000
ECCM Assessment Analysis	Morris, G. (SEAL)	Air Force	1,330,000
Radar ECCM Flight Test Demonstration and Vulnerability Assessment Program	Morris, G. (SEAL)	Air Force	350,000
Electronic Systems FME/FSA	Cotton, R. (SEAL)	Navy	370,000
Conformal Aperature Velocity Sonar (CAVES) Concept	Caille, G. (SEAL)	Navy	1,261,000

Countdown to 1996

What about mail? Will there be normal deliveries of on-campus and off-campus mail during the Games?

Yes, although some of the usual procedures will change during the security period from July 1 to Aug. 10. Plans currently call for an off-campus post office. All mail would go there, be

sorted and then be brought onto campus.

For the Research Controlled Area, no other major mail issues are contemplated. However, for the Village Security Zone, mail will go through a security process that includes X-ray surveillance. In fact, delivery trucks won't be able to cross over into the Village Security Zone. Mail will be unloaded,

checked, and then reloaded onto "sanitized" service vehicles that will remain inside the fences for the duration of the six-week security period.

Once inside either zone, however, the Tech delivery system will function as usual.

Source: William A. Miller, Director of Olympic Planning for Georgia Tech.

German Scientist Helps Establish Collaborative Work with GTRI

Visiting researcher Jens Tomm of Humboldt-University in Berlin may be finishing his nine-month stay at GTRI in March — but the EOEML collaboration he participated in will continue.



Jens Tomm

Tomm, a researcher in semiconductor physics, has spent the past nine months characterizing — discovering the properties of — optical materials grown

by Chris Summers and research groups in EOEML. He has published two conference papers, and more are in progress. In addition, GTRI student Tuyen Tran will travel to Germany for three months in the spring to continue the cooperative work.

"Tran will analyze structures grown here using equipment in Germany," said Tomm, an assistant professor in Physics at Humboldt-University in Berlin. "The equipment in Germany is different from the equipment in the United States, and by collaborating we can employ both types."

Tomm came to GTRI via a grant for research in the United States awarded by the German Research Council. He was familiar with Summers' work from reading research literature. Upon the advice of colleagues in this country, Tomm contacted Summers to see if he might use the grant to work at GTRI. Summers agreed, and the two began working together before Tomm arrived in February

1994. Since then Tomm has characterized both infrared and phosphor materials created by researchers in both the Quantum Microstructures Group and the Phosphor Technology Center of Excellence.

"Here you have completely new structures I never had worked with before," Tomm said. "I helped analyze them for my GTRI colleagues. My students in Berlin did work on these materials, as well. I had the opportunity to learn about the new materials and to work with a group of international researchers from Lebanon, Korea, India and Britain."

His students in Berlin also helped with the studies, analyzing materials using equipment in his lab there.

Tomm looks forward to continued collaboration with his GTRI colleagues, and perhaps even a return visit to GTRI in the future.

"I am especially happy that the cooperation will continue," he said.

Nominations for 1994-95 Faculty Awards Sought

The Faculty Honors Committee is soliciting nominations of faculty members as candidates for recognition in the following categories:

Distinguished Professor Award:

This award was instituted by the Class of 1934, and is the highest award given to a faculty member. This award recognizes sustained outstanding achievement in teaching, research, and service, and includes a stipend of \$12,500.

W. Roane Beard Outstanding Teacher Award:

Two awards are presented to faculty members who have taught at least six quarter-hours during the 1994-95 academic year. Each recipient receives a \$5,000 stipend provided by the Class of 1940.

Outstanding Service Award:

The award is presented to an individual who has benefitted the institute, profession, school or department, or the general public in an exemplary manner. The recipient will receive \$5,000 provided by the Office of the Executive Vice President.

Outstanding Interdisciplinary Activities Award:

This award recognizes faculty who have made significant interdisciplinary contributions to teaching and research. Nominations of multiple names to share in the award will be accepted.

This award includes a stipend of \$5,000 provided by the Class of 1934.

Outstanding Continuing Education Award:

This award recognizes a member of the general faculty who has made significant contributions to the institute, profession, industry/government, and/or general public in the area of continuing education. The recipient of the award will receive \$2,000 provided by the Department of Continuing Education.

Send nominations by April 14, 1995, to:

Professor Ronald W. Schafer
Faculty Honors Committee Chairman
Georgia Institute of Technology
School of ECE
Atlanta, GA 30332-0250
Telephone: (404) 894-2917
E-Mail: rws@eedsp.gatech.edu

Recommended guidelines for nomination packages and additional information, including eligibility, can be obtained from Dr. Schafer or your School/Department Director.



News & Notes

Craig Wyvill (center) and Richard Carey (right) explain functions of Tech's integrated optics biosensor to visitors at Georgia Tech's Agricultural Technology Research Program (ATRP) booth. The exhibit was part of the 1995 International Poultry Exposition held January 18-20 at the World Congress Center. ATRP showed video of project footage and interviews with project directors; provided an interactive computer kiosk (foreground) that included ATRP and Georgia Tech information, plus a poultry trivia quiz; and showed lab prototypes of two projects in development, the biosensor and a sequence batch reactor. (Photo by Rae Adams)

Focus on Research

The GTRI Arlington Office's Wayne Taylor, far right, recently was among recipients of the Team of the Quarter award given by the C2 and Weapons Programs Office, of the Office of the Assistant Secretary of the Air Force (Acquisition). Brig. Gen. John Hawley, far left, presented the award recognizing the Combat Training Ranges Team's talent and dedication. The team is comprised of Air Force, GTRI and ANSER Corp. representatives. Lt. Col. Stephanie Loverro, second from left, expressed her appreciation to Taylor for his outstanding work. "Wayne provides the backbone for the program because of his invaluable corporate memory and insight into how the (Pentagon) works," she said. Also present was Marsha Kissinger of ANSER, second from right. (Photo Courtesy Arlington Office)

Internal Research Update: Traffic Management to Human Visual Perception

Following are updates on two more internal research projects.

•**Intelligent Advanced Traffic Management System Architecture**, ITL's John Gilmore and Stefan Roth, and Civil Engineering's Peter Parsonson: Managing traffic around Atlanta during the 1996 Olympics will be an Olympian task. GTRI researchers are offering their expertise by developing a computerized advanced traffic management system (ATMS) that works in real time to control the city's traffic. The ATMS also will tell travelers the best routes and modes of transportation to their destinations. This project relies on the modeling, simulation, neural network and expert systems knowledge and skills of GTRI researchers. The ATMS they develop will be programmed to control traffic signals around town, but also will "learn" from and adapt to current traffic conditions. Among the factors the system will consider are special events traffic, congestion on interstates and at intersections, road maintenance and accidents.

The researchers have an ATMS blackboard architecture in place, with all of the knowledge sources for traffic control, such as signal lights, congestion prediction and others, working at the same level, Gilmore said. An unexpected achievement for the researchers has been their development of a traffic simulation of Atlanta that runs 20 times faster than real time.

"Our goal was to equal real time, so we have gained fast simulation as a means of congestion prediction, which is something we had not planned on," Gilmore said.

The researchers briefed the Federal Highway Administration in Washington, D.C. about the project at the agency's re-



quest, and hopes to gain this group's sponsorship to continue work in 1995. They presented information on their initial project work at the Vehicle Navigation and Information Systems Conference in Yokohama, Japan, in September and have submitted two journal articles and a conference article to other outlets, as well. The researchers also are writing proposals. Three Ph.D. students and one master's degree student are working on the project, along with one undergraduate co-op.

•**Neural Feedback for Computational Vision**, EOEM's Ted Doll, David Schmieder and Bill Rhodes, Electrical and Computer Engineering's Stephen DeWeerth, and Psychology's Elizabeth Davis: Knowledge of how humans perceive objects could be used to improve the design of cars, planes, computer displays and more. This project, called the Georgia Tech Vision model (GTV), is an enhancement of Doll and colleagues' previous model that mimics how weapon system operators pick out targets on busy landscapes. The researchers will add feedback to the system by accounting for information transmitted from higher to lower levels of the nervous system. This will make GTV even more representative of human neurophysiology. GTV could help physicians diagnose certain diseases by automatically screening radiological and other

types of images. It could also provide a flexible artificial vision system for inspecting products on the assembly line.

The researchers have added an artificial neural network to the model that simulates the effects of practicing and training on an observers ability to reject clutter when visually searching an image viewed through a telescope or night-vision device. This makes the model capable of mimicking human ability to attend selectively to features of a target, while ignoring features of background terrain.

Various Army agencies that have funded the development of the GTV model have asked for and received ideas for follow-on tasks. Follow-on funding from other outside sponsors might make possible GTV applications to night vision and combat modeling, consumer visual responses to products, and image interpretation.

A book chapter describing the GTV model, "Simulation of Selective Attention and Training Effects in Visual Search and Detection," will be published in *Vision Models* by World Scientific Publishing Co. of Hong Kong. Six graduate students are working on various aspects of the internal research project and GTV. Five are doctoral students in psychology, physics, or electrical engineering, and one is a master's student in electrical engineering.

Biomedical Collaborative Research Grants Available

Are you interested in or already collaborating on biomedical research with an Emory University colleague? If so, the collaborative research grants offered by the Emory/Georgia Tech Biomedical Technology Research Center may be for you.

Proposals must have at least one co-principal investigator for each institution, and each investigator must be a full-time permanent faculty member of assistant professor rank or higher, or the equivalent research rank. Applications will be reviewed by a committee of eight to 10 biomedical scientists from the two institutions. Proposals will be judged on sci-

entific merit, potential for external funding, and value toward enhancing Emory/Georgia Tech collaborative research programs.

Proposals are solicited in four categories: Seed Grant Program, Established Collaborator Program, Centers of Excellence Program, and Medtronic's Synergy Program. Grant applications will be for funding of up to one year in duration. Renewals for a second year may be permitted, except for Seed Grants, subject to demonstrated progress and a competing renewal application. Renewals for Seed Grants should be submitted under the Established Collaborator Program. A final report will be due by August 1, 1996.

An original and 12 copies of the applications must be received by 4 p.m. on March 27 in the office of either of the co-directors of the program. Their phone

numbers are provided for more information:

R. Wayne Alexander
R. Bruce Logue Professor and
Director, Division of Cardiology
Emory University School of Medicine
P.O. Drawer LL
Atlanta, Ga. 30322
727-8143

Ajit P. Yoganathan
Regents Professor of Chemical and Mechanical Engineering
Co-Director, Bioengineering Center and
Emory/Georgia Tech Biomedical Technology Center
Georgia Institute of Technology
Atlanta, Ga. 30332-0100
894-2849

GTRI Expands Its Own World Wide Web Site

GTRI is spinning its own section of the World Wide Web.

After months of development, GTRI's colorful central "Web site" — with distinctive black-and-gold logo — hit the Internet early this month. The GTRI site, which currently consists of about 150 on-screen pages describing research capabilities, joins a Georgia Tech site that has been running about a year.

"In developing for the Web, we're making it easier for people to find out about and to access our material," says Katie Albers, a Georgia Tech Literature, Communications and Culture graduate student who has been developing GTRI's central Web site.

The World Wide Web, known variously as "WWW," "the Web" or "W3," is a multimedia hypertext method of accessing information located on the Internet. The Web information you access often looks like magazine pages complete with graphics and photos — but unlike magazine pages, it may include sound and movies. The Web began three years ago and is helping bring structure and ease-of-use to the Internet's information functions. Using graphical user interface "browser" software such as Mosaic or Netscape, Internet users can point-and-click their way through vast quantities of information.

The catch is that to be "on" the Web, an institution or corporation must create one or more Web site(s), located on dedicated servers. Yet once a Web site is up, anyone on Earth with Internet access, browser software and a reasonably modern computer can access all the colorful information a Web participant wants to offer. Multimedia computers can receive sound, movies and cartoons over the Web, as well.

The Web started life in 1992, when a scientist with the CERN organization in Switzerland developed a way to let researchers using different computer platforms share information, including charts and videos, across the Internet. Tim Berners-Lee developed hypertext markup language (HTML), which allows creation of hyperlinks across networks. HTML in turn allows the creation of hypertext — computer parlance for a system in which clicking on a given topic leads to additional screenfuls of information.

In 1993, the Web grew at a rate of 350,000 percent. Estimates of the number of Web participants varies widely. Albers puts the figure at "hundreds of thousands" currently.

Georgia Tech's participation began when Michael Mealling of the Office of Information Technology set up a Tech Web site about a year ago. But credit for the very first GTRI Web pages goes to IITL's Bob Baggerman, who was inspired by Tech's work.

"When I saw Tech coming up with their pages — including links to departments — I knew it was time to reserve our spot for the Tech pages," Baggerman says.

In September, GTRI began development began on a central Web site. Albers, a GRA,



spent months putting together a Web structure that now numbers some 150 pages and is still growing.

"One of the Web's advantages is that you can use it to access a huge percentage of what's available [on the Internet]," Albers says. She explains that the Web overlaps such Internet applications as Gopher, Fetch or Telnet. Web browsers either start up those applications automatically or have those capabilities built in.

Some GTRI labs, such as SEAL, previously had their own Web presence, and now are linked to the central GTRI site. Soon all GTRI labs are likely to have their own pages, which they will design and modify directly. Besides Baggerman, lab personnel currently engaged in developing a Web presence include Jay Saffold of SEAL; Chris Harvey of IITL, and Mark Hodges and Susan Farrell of EOEML.

Web coming attractions include biographical sketches of the lab directors and others; the GTRI Annual Report; and information on GTRI new research centers, along with other general information.

One Web addition Baggerman would like to see is an internal-use page providing data on various government agencies. The aim, he says: "To let GTRI researchers find out more about the government agencies we work with."

Junior Researcher Program Announced

In a move to augment GTRI's research renown, a new program is targeting the hiring of faculty whose early research careers shows strong levels of accomplishment and promise.

The Junior Research Faculty Leader Program invites laboratory and unit directors to identify promising candidates and then submit a job proposal to Director of Research Operations Ed Reedy. Junior Research Faculty Leaders will typically have less than 10 years experience, and they will be tasked to develop a nationally recognized program with a major impact on GTRI.

The junior leader program, outlined in the latest edition of the Policies and Procedures Manual, will draw support from a combination of laboratory, sponsor and short-term Research Operations funds.

GTRI Has Role In \$40 Million Electronics Packaging Center

GTRI will be a partner in the Low-Cost Electronics Packaging Research Center (PRC) recently created at Georgia Tech, and researchers here hope to gain several benefits from participation in the Center.

The PRC, announced in September, unites academic and GTRI research teams in a drive to create new generations of electronics "packages." Such packages would allow smaller, less expensive, more powerful electronics and strengthen the U.S. position in world electronics markets.

"We will have one of the most comprehensive programs in the country, aimed at developing both a skilled work force and the technologies needed by industry," said Rao Tummala. He is director of PRC and Pettit chair professor in the School of Electrical and Computer Engineering and School of Materials Science and Engineering.

Projections call for PRC-related contracts to bring in some \$40 million to Tech over a five-year period. The Center will be seeded by a National Science Foundation commitment of \$2 million annually over an 11-year period. Contracts from the State of Georgia, industry partners, the DoD and the Sematach research consortium are expected to provide additional support for the PRC.

Fred Cox, who works in GTRI's Information Technology and Telecommunications Laboratory, expects his team initially to receive two PRC projects for design and testing. Cox said it is "exciting" to be part of the PRC because of its potential for major technical and economic impact for the nation.

"The PRC should enable us to develop more contracts and probably expand some of our research areas," he said, adding that he expects the Center to allow him to expand research in computer-aided engineering (CAE), design automation (DA) and computer-aided test engineering (CATE).

The Center will make use of expertise developed at Tech over a number of years to advance the technologies for multi-chip modules (MCMs) and single-chip modules (SCMs). The aim is to integrate such chip

Focus on Research

Katie Albers (RCT) displays GTRI's home page on the World Wide Web.
(Photo by Stanley Leary)

Continued on page 8

Focus on Folks

AERO's Kevin Massey, left, and Sherry Travis, center, went beyond the call of duty in helping to prepare a report and figures on Open-Jet Wind Tunnels, says Krish Abuja, right. The report merited the adjacent thank you letter from a NASA representative. (Photo by Anita Edwards)

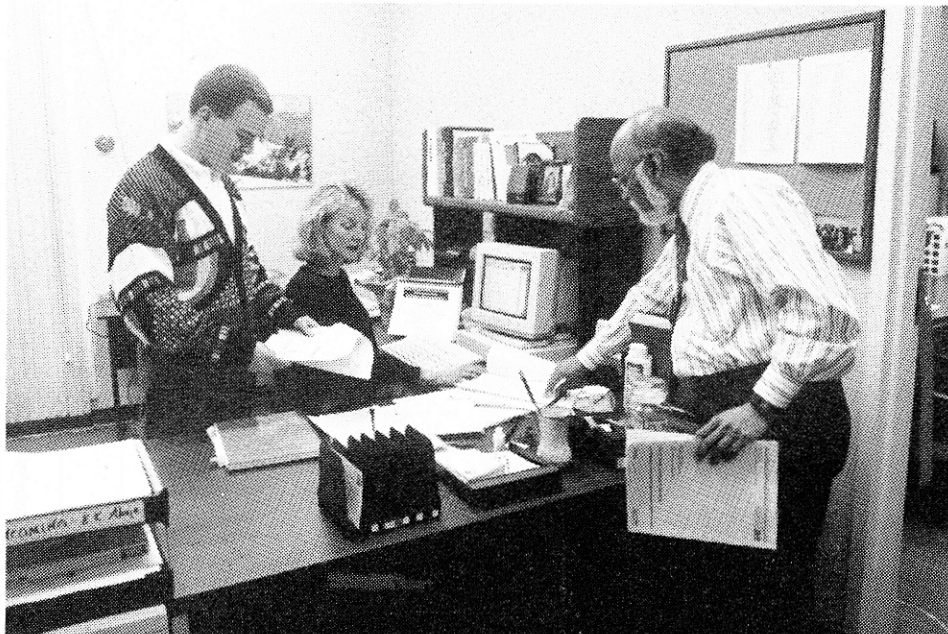
Kudos

AERO's acoustics branch employees were commended recently for their final report to CALSPAN on the aeroacoustics Open-Jet Wind Tunnels, with particular reference to the design of the Open Jet Tunnels for the National Wind Tunnel Complex (NWTCC). This design study is being collectively funded by NASA Langley, NASA Ames, NASA Lewis, and the U.S. Air Force, although the direct source of funds was Arnold Engineering Development Center (AEDC) via the CALSPAN group at AEDC.

A key wind-tunnel designer and associate division chief at NASA Ames wrote the following letter to Krish Abuja (AERO). Abuja notes that graduate student Kevin Massey helped in some of the calculations for the report. "He and Sherry Travis went beyond the call of duty to prepare the figures and the report in general," Abuja said. "Thank you both, Sherry and Kevin, for your hard work and making us look good."

National Aeronautics and Space
Administration
Ames Research Center
Moffett Field, CA 94035-1000

December 15, 1994
Dr. Krishan Kumar Abuja
Branch Head and Professor of Aerospace
Engineering



Georgia Tech Research Institute
Georgia Institute of Technology
Aerospace Laboratory/Acoustics Branch
Atlanta, Georgia 30332-0800

Dear Krish:

I very much appreciate the excellent job you and your colleagues did on the study of open jet wind tunnels in support of the proposed National Wind Tunnel Complex. This work is an essential first step in developing a unique and large open jet facility which is world class. This new facility is crucial to meet-

ing the nation's requirements of excellent flow quality, high subsonic speeds, and low noise. My understanding of the mechanisms involved with open jets has been much improved as a result of your study. Over the years I have kept up with the work done in support of the DNW [the world's best acoustic open-jet wind tunnel, located in Holland], and have not understood why they have so many resonant conditions until now.

Regards,
Kenneth W. Mort

You Can Help

Give Your Outdated, Personally Owned Computer Equipment A Good Home: Timber Ridge Elementary School

Is that outdated PC sitting in the floor of your bedroom or home office, unplugged and unloved, while its faster successor plays games and does your home finances at warp speed?

If so, you might want to give that oldie but goodie — and other personal computer equipment — a good home.

Ed Soniat (ITL) is working with Cobb County's Timber Ridge El-

ementary School computer coordinator to collect equipment that students there can use. Ed will pick up old, personally owned PC XTs, ATs, 386s or 486s that are in working order or have working parts, and then deliver them to the school. Donors get receipts for their tax records, and the students get computer equipment set up and maintained by volunteers like Ed. He's had some donations already.

"I have received a Compaq AT with a 10 meg hard drive and a monochrome monitor, and a 5.25 floppy," Ed said. "And, I have been promised a VGA color monitor and a printer."

Only personally owned computers can be donated to the program — government- or sponsor-owned property

cannot be donated.

Among the items the students could use are: PC/XT/AT/386/486 — any speed that works; printers — any type; printer paper — any type; network cards; 5.25 drives and 3.5 disk drives — all densities; IDE hard disk — any size, even the smallest; mice, and mice pads; cables — serial, parallel, monitor; plug strips and extension cords; printer switch; floppies 5.25 and 3.5 — any density; disk boxes and organizers; software — any and all; and manuals and books — DOS and other software.

If you'd like to donate some of your personal computer items, you may contact Ed at 894-3308 (w), 992-11647 (h), or ed.soniatt@gtri.gatech.edu.

Faculty Commercialization Research Program Seeks Proposals

The Advanced Technology Development Center (ATDC) invites technology oriented academic and research faculty to submit proposals for innovative product development funding through the Faculty Research Commercialization Program (FRCP). The FRCP provides financial and business assistance to move research technology from the conceptual laboratory stage toward a commercially viable product.

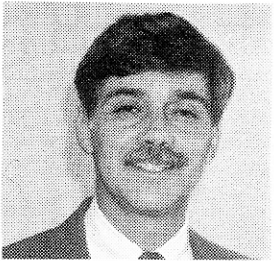
Funding can total up to \$100,000 per project and can be used for equipment, materials, contract consulting, release time and other needs just as any other research contract. Faculty are encouraged to involve students in these projects whenever possible.

Begun in 1991, the FRCP was created to help develop promising research technology into a fully featured prototype of a marketable product. The ATDC traditionally has provided business development support, market research, and business planning to new technology ventures. With the FRCP, ATDC can now provide criti-

cally needed funding for product-prototype development. Formed in 1980 by the Governor and General Assembly, ATDC is charged with increasing the high technology business base in Georgia.

The FRCP program is not intended to fund basic research. Only applied research projects directed at a specific commercial product or technology with potential market opportunity will be considered. The deliverable will be a "prototype" product that could become the basis for establishing a new company, a valuable licensing opportunity.

Proposals are due to ATDC on March 24. For more information, contact program manager Sheila Stanley at 894-3575.



Myron L. Cramer



David Aalfs



Philip Mullins

GTRI Greetings!

Welcome to some of our newest employees:

Ten good things we know about Myron L. Cramer

1. He joined GTRI's Electronic Systems Laboratory (ELSYS) in September 1994 as a principal research scientist.
2. As a Senior Faculty Research Leader, he is spearheading Georgia Tech's investigations in competitive information technologies and information warfare.
3. Before joining GTRI, Myron worked in the corporate world where he specialized in scientific analysis of real-world problems. His last post was seven-years spent as a senior associate with Booz, Allen & Hamilton, McLean, Va.
4. His interests include information warfare, electronic warfare, intelligence, reconnaissance, sensors, communications and computer modeling/simulation.
5. Myron holds a bachelor of science degree in physics from Notre Dame and a doctorate in physics from the University of Wisconsin.
6. He is married and has two children. He says that compared to Washington, D.C., Atlanta seems pleasantly small and livable, and has rather light traffic.
7. His interest in information technology goes around the clock: Besides his equipment at work, he has three computers at home.
8. Myron is active with the Boy Scouts through St. Joseph's Church in Marietta, where his son is a Scout.
9. The Cramer family enjoys sailing, and they keep an 18-foot sailboat at Lake Lanier.
10. However, Myron's Lake Lanier sailing experience goes way back. In fact, he recalls winning a sailboat regatta there in 1971.

Ten Good Things We Know About David Aalfs:

1. He joined GTRI's Sensors and Electromagnetic Applications Laboratory (SEAL) in late December 1994 as a research engineer II.
2. His specialty is radar signal processing, and he expects to work largely on ground-based radar.
3. He says he was attracted to Tech because of its reputation for first class work in the radar field.
4. Recently, while waiting to begin a longer project, David wrote a program over two weeks that allows control of phase-shifter hardware in the field through a laptop computer.
5. He recently completed a doctorate in electrical engineering at Clemson University, where he received a NASA graduate research fellowship.
6. His undergraduate degree was also

from Clemson — and also in electrical engineering.

7. When David was at Clemson, the research team he worked on received a NASA citation for work on an airborne wind-shear detection project for commercial jets.
8. He was born in California and was raised "all over the U.S." Currently, his family lives in Raleigh, N.C.
9. David, 28, is married and he and wife Laurie live in Smyrna. "No children yet," he says, but they do have three cats.
10. Though his hobbies "went on hold" while he was doing his doctorate, he is now working on improving his violin-playing skills in his spare time.

Ten Good Things We Know About Philip Mullins:

1. He began work here as manager of GTRI's Machine Services Department in December 1994.
2. He supervises 13 employees, mostly machinists, who serve research project needs in both GTRI and the academic side, in the Hinman campus shop and at the Cobb facility.
3. Phil, who is 40, has extensive experience in industry. He worked for Siemens in Tucker, Ga., for nine years as a manufacturing engineering coordinator. Most recently he was a production engineer for Super Sagless Corp. in Tupelo, Miss.
4. He says his Tech job is an "extremely interesting position" because of the many different materials and processes involved.
5. Another benefit to being back in the Atlanta area: Phil is closer to his three kids, who are in school at Western North Carolina University.
6. He and wife Kay live in Acworth, Ga.
7. Phil was born in Nashville, Tenn., and lived for many years in western North Carolina near the Georgia border.
8. He attended Western Carolina University in manufacturing engineering technology and has some 1,300 hours of classes in professional seminars and industry-related courses.
9. In his spare time, he is involved in amateur shortwave radio, and he enjoys hiking and kayaking.
10. Phil is especially proud of a 1992 Outstanding Volunteer of the Year award that he and his family received from the governor of North Carolina in recognition of setting up a teen center in Hayesville, N.C.

Georgia Tech
RESEARCH INSTITUTE

FutureNet

From page 2

The arrangement carries clear benefits for each participant. By installing FutureNet fiber in cooperation with the Olympic-sponsor installation, Tech reduces its expense; ACOG avoids the cost of ripping out its communications infrastructure after the games. Meanwhile, corporate partners get to showcase their technological achievements to the '96 Olympics audience, as well as gain potential future research privileges.

But supplying data, voice and video capability to the Olympic Village and sports venues will demand less than half the infrastructure that Tech needs, explains John Mullin, FutureNet program manager and OIT's director of planning and programs. Among other things, Tech requires that buildings outside the official Olympic Zone — such as the Centennial Research Building and the Electronics Research Building — be included in the wiring project.

The Olympic/FutureNet project carries a \$12 million to \$15 million price tag, Mullin says, with costs shared by Georgia Tech and ACOG along with the private partners, AT&T and BellSouth. University System of Georgia Chancellor Stephen Portch has already requested \$4 million for the current construction phase. Additional funding is being sought from various sources, and future partnerships with other technology providers are likely, particularly in the video arena.

FutureNet should not be confused with X-net, an experimental wideband network that can speed data between selected campus sites at up to several gigabits per second. At the same time, X-net is serving, among other things, as a testbed for coming FutureNet services.

Beyond the \$12-\$15 million Olympic phase stand other hurdles for FutureNet. Routers, switches and servers must be added. Also looming is the task of wiring buildings internally, which according to Freeman can be quite expensive. Price tags vary widely depending on usage in a given building and on individual installation problems, factors that make cost estimates for FutureNet's later phases problematic.

One encouraging development: New dormitories built for the 1996 games are receiving FutureNet-capable wiring, called Category 5 twisted pair, capable of 155 Mbps.

It's expected FutureNet will also benefit the rest of the University System of Georgia, by opening up such Georgia Tech resources as classroom instruction to students elsewhere in the state. FutureNet will also serve as a model for extending high-speed connectivity to other state-system institutions.

Says Freeman: "We have to use more technology in our classrooms — and in our whole educational process."

**Focus
on
Folks**

Focus on Folks

A U.S. Air Force MH-53 Special Operational Forces helicopter undergoes a hover performance test in Colorado. This test program was managed by AERO for Warner Robins Air Logistics Center, and included Sikorsky Aircraft Corp.'s Developmental Flight Center's facilities and personnel via a subcontract. The test required two weeks to complete. (Photo Courtesy Charles Crawford)

The GTRI Connector
Vol. 11 No. 4 February 1995

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

Charlotte Doughty, RCT
894-6965

EDITORIAL REVIEW

Charles Brown, RSF
894-3516

ASSOCIATE EDITORS

Miriam Crenshaw, ERB
894-3523
Ann Dunchew, ELSYS
894-3592
Delora Gould, SSD
894-3408
Maggi Harrison, Cobb 2
528-7826
Lee Hughey, AIST
894-9621
Eunice Glover, PST
894-6972
Joanna King, Baker
853-0460
Lisa McDonald, Cobb 1
528-7012
Diane Smith, O'Keefe
894-0024
Janice Porter, VPDIR
894-3401
Jennifer Tate, RSD
528-7808



This publication is printed in part on recycled paper.

Professional Activities

Electro-Optics, Environment and Materials Laboratory

Matthew Malok (EOEML) of the Training Programs Office recently attended a long-range planning committee meeting of the GAEA (Georgia Adult Education Association), held at Clayton State College. Committee members discussed association goals for the year 2000 and beyond.

Systems Technology Laboratory

Bill Bell presented two papers at the 33rd AIAA Aerospace Sciences Meeting and Exhibit in Reno, Nev.: "Analysis of Flows between Rotor Blades with the Wavelet Transform," paper number AIAA-95-0018, authored by Bell and **J. Lepicovsky**; and, "Analysis of Duct Acoustics Using an Adaptation of Yee's Method," paper number AIAA-95-0165, authored by Bell and **J. G. Maloney**.

Research Communications Team

John Toon and **Lea McLees** of RCT and Dan Forbush of the University of the State of New York-Stony Brook Research Foundation presented a February 12 seminar at the Council for Advancement and Support of Education's District III Conference in Atlanta. The seminar addressed methods of electronic communication with internal and external audiences. Toon and McLees also helped with preparations for and attended the annual meeting of the National Association of Science Writers, held in conjunction with the American Association for the Advancement of Science meeting in Atlanta, February 16-21. Toon, College of Computing's **Jeanette Myers**, freelance writer Joel Shurkin and the Whitaker Foundation's Frank Blanchard organized and presented a seminar on "Navigating the Internet" to NASW members, and Toon gave several additional demonstrations of electronic communication methods. One result of the NASW work was the formation of a local chapter, the Georgia Science Writers Association (GASWA), which includes university, business, media and freelance science writers from around the state.

Personnel News

New Hires

ITL welcomes **Bryan Dunn**, Research Engineer I; and **Ingrid Hybinette**, Research Scientist I.

SEAL welcomes **Jeff Corbin** as a Research Engineer I.

Jesus I. Grave de Peralta began working with EOEML's Communications Branch on January 9.

SSD welcomes **Azita Alizadeh** as an Electronics Technician I.

Gerald Smith has begun work as the new Director of Enterprise Strategy.

Transfers

AIST welcomes **Angela DuBose**, Information Analyst I, who transferred from Research Property.

ELSYS welcomes **Stanley Hughes**, Research Scientist I, who transferred from ITL.

Moving On

Joseph Harris (SEAL) and **Johnson Wang** (SEAL) recently left GTRI employment.

Personal Notes

Cradle Roll

Chele and **Bill Kirsch** (AIST) welcomed twins, a son, Mark Patrick, and a daughter, Megan Genevieve, on January 20.

Bob Cassanova (AERO) welcomed his first grandchild, a boy named Justin, on January 26.

Our Sympathy

... to **Katherine Joseph** (EOEML), whose father, George Bodurow, passed away January 7.

In Memory

Walt Hicklin died suddenly on Dec. 31, 1994 of heart complications following the implantation of a pacemaker. Walt was born Dec. 2, 1917 in Milwaukee, Wis. and was a World War II veteran. He worked many years in GTRI performing research in noise measurements, thin-film electronic components, and analytical instrumentation until he retired on Aug. 15, 1979. Walt is survived by two nephews, Bob and Jerry Lybarger. Walt's wife, Sue, died two weeks earlier, on Dec. 16, 1994.

Elmer Rhodes, GTRI scientist and researcher during our days as the Engineering Experiment Station, passed away Feb. 6. He retired from EES in 1982 as a Principal Research Scientist with the Systems and Techniques Laboratory (now SDL at Cobb

Center

From page 5

packages into future electronics that cost less, consume less power, perform better and are more portable than current electronics. Within the next 10 years, the center's work could make possible a single palm-sized machine costing \$200 and incorporating a cellular video telephone, main-frame-computing power and a wireless fax modem.

Other GTRI researchers include Nile Hartman of EOEML in optoelectronics and Ron Bohlander of ITL in design. Bohlander, who will work with Cox on design issues, believes the establishment of "major labs" for designing multi-chip modules will be of strong benefit to GTRI.

"These resources are very attractive to GTRI sponsors," he said, adding that the ability to offer such things as MCM design projects to sponsors "will help our contract base in advanced electronics to grow."

Key PRC facilities are expected to be located in the Manufacturing Research Center, the Microelectronics Research Center, the Electronics Research Building, the Electrical and Computer Engineering School and the Baker building. The Center is expected to receive space in the new 14th Street Georgia Center for Advanced Telecommunications Technology (GCATT) building, slated for completion in 1996. The Georgia Research Alliance is participating via its funding of both GCATT and the Pettit chairs.

Cox mentioned that the PRC's broad on-campus base is already helping GTRI researchers form closer ties with other areas at Tech, such as Mechanical Engineering and Electrical and Computer Engineering.

"We're having direct interaction with them, which is very good," he said. "It's having a beneficial effect on other, ongoing projects" as academic-side scientists exchange information with GTRI scientists.

Cox praised Tummala's efforts in bringing the PRC to reality. He called the Center's mission "critical" for the nation.

"The implications of being the leader — or not — are important from the standpoint of gross national product, number of jobs, quality of jobs and defense preparedness," he said.

County). Rhodes also taught in the School of Physics during his career at Tech. He continued to work with GTRI as a temporary (post-retirement) researcher as needed until 1989. The Rhodes family held a reception at his son's home on Feb. 11.

