



illuminating

GTRI ANNUAL REPORT 2001

the future



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Light encompasses
component **colors**.

Innovation encompasses
essential commitments.

And innovation, like light,
illuminates.

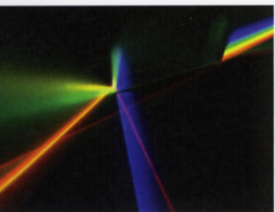
At the Georgia Tech Research Institute, the light of innovation is built on a commitment to gaining and applying new knowledge to meet research challenges. It includes collaborating with new and established customers, creating the research solutions they need. And innovation at GTRI also embodies developing new applications for the knowledge we've acquired during 67 years of research.

Innovation at GTRI illuminates the future.

*Read on to learn about the directions
in which our light is shining.*



Creating Solutions Through Innovation



2001 in review

ILLUMINATING THE FUTURE

Since GTRI began performing research in 1934, our job has been shedding light on—and thus shaping—the future of now 30 engineering, scientific, economic, and technical research and service areas. During FY 01, we continued that 67-year tradition.

Fiscal Performance

GTRI's contract research awards continued to be strong during FY 01, totaling \$100.8 million. Although not a record year, FY 01 was the third consecutive year that awards exceeded \$100 million. In addition, GTRI's end-of-year contract backlog was the largest in our history, following several consecutive months of very high awards.

GTRI FY 2001 Major Customers

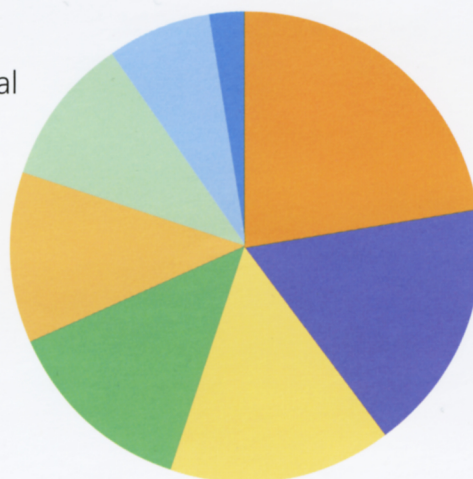
(% of research expenditures)

22.1%	U.S. Air Force
17.3%	U.S. Army
13.7%	State of Georgia
12.2%	Industry - Federal Subcontracts
11.7%	Other Dept. of Defense
11.1%	U.S. Navy
9.5%	Industry - Commercial
2.4%	Federal Non-DoD

Organization, Leadership, and Infrastructure Changes

Several FY 01 structural changes will ensure that our researchers are located near growing customer bases.

We opened a New Mexico Field Office in Albuquerque following a three-year period of expanding our research in this region. In addition, our new Orlando Research Operations Office in Florida will allow us to expand relationships with existing customers, develop new teaming arrangements, and expand new technology applications in Central Florida.



In response to a changing business environment, we restructured the Arlington Research Laboratory as the Washington, D.C. Field Office. We also closed the Fort Monmouth Field Office in New Jersey, as much work originally done there is now performed on campus.

GTRI debuted an updated Internet presence in March at www.gtri.gatech.edu. Our new Web site is clearer, more concise, and packed with up-to-date research information—be sure to visit it.

On the leadership front, longtime GTRI employee Jerry Lett was named Management and Project Support manager following Carolyn Mahaffey's retirement. We appreciate Carolyn's years of service and are pleased to have Jerry leading daily operations of this important unit.

And in the area of infrastructure, GTRI's planned Food Processing Technology Building received support from the Governor's Traditional Industries Program for Food Processing; a successful capital fundraising campaign secured more than \$1 million in private donations, as well. Ground-breaking is scheduled for 2002.

Strides in Research

This report features FY 01 GTRI research that is illuminating the future today. Many of you already are familiar with GTRI's extensive work in national preparedness and security. This year we take the opportunity to focus on our established—and developing—research in additional areas:

- creation of a next-generation ozone monitor that will provide a three-dimensional picture of air quality every ten minutes
- design of a super-high-speed optical switch with transmission speeds of up to one gigabit of bandwidth per second over distances greater than 80 kilometers
- use of aviation maintenance technology to accelerate nursing education from classrooms to clinical settings
- development and testing of an automated computer vision system that detects defective chickens early during poultry processing
- application of new technologies to help first responders arriving at disaster scenes
- development of a three-dimensional dental simulation that could be used to fit crowns with amazing precision
- development of "smart" instrumentation that could help determine an absolute, causal link between asthma and substances that may trigger it
- promoting sustainability at federal facilities by identifying useful technologies.

In the continuing education arena, GTRI was granted full membership in and was accepted by the International Fire Service Accreditation Congress in April, making our organization one of fewer than 60 IFSAC member groups in the world.

Public service is an important part of GTRI's mission -- we are here to serve the station, nation, and world. During FY 01 GTRI supported 27 researchers who work in national organizations through the Intergovernmental Personnel Agreement Program (p. 14). This arrangement allows scientists and engineers to collaborate directly with colleagues in federal agencies while retaining their GTRI faculty status.

Our employees also voluntarily serve in numerous professional organizations and on advisory boards including the Institute of Electrical and Electronics Engineers, the Air Force Scientific Advisory Board, the Army Science Board, the Defense Science Board, and the National Advisory Committee on Occupational Safety and Health.

Individual Achievement

Many GTRI employees who are lighting the way toward progress in research were honored by outside organizations for their achievements. Among those recognized this year:

- Jennie Lincoln—honored by the National Police of Bolivia for her United Counterdrug project work

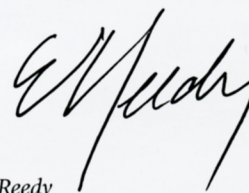
- Myrtle Turner—asked to serve on the National Advisory Committee on Occupational Safety and Health, which advises the U.S. Secretary of Labor and the Secretary of Health and Human Services

- Dale Blair—named 2001 Young Radar Engineer of the Year by the Institute of Electrical and Electronics Engineers Aerospace and Electronic Systems Society (IEEE AESS)

- Juan Vitali—won the U.S. Environmental Protection Agency's 2000 Stratospheric Ozone Protection Award for his success in finding an environmentally friendly alternative to halon in U.S. military jets

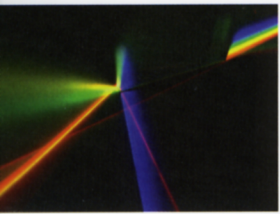
- Claudia Huff—commended by U.S. Senator Bob Kerrey for contributions to The Power of the Internet for Learning: Moving from Promise to Practice, a report compiled by Congress' Web-based Education Commission.

The energy source that powers GTRI's research light is, without a doubt, our employees. They apply hard work, dedication, skill, and intelligence in creating innovative solutions to our customers' problems today and tomorrow. Thank you to our employees, the key to GTRI's illumination of the future.



Dr. Ed Reedy

Vice President, Georgia Institute of Technology
Director, Georgia Tech Research Institute



new knowledge

ILLUMINATING THE FUTURE

A little light goes a long way—as does a little new knowledge. At GTRI, we're developing and applying new knowledge in streamlining heavy-vehicle performance. We're creating innovative air quality measurement techniques. And we're collecting data on an elegant concept for reducing jet engine noise.

Quieting the Environmental Impact of Jet Noise

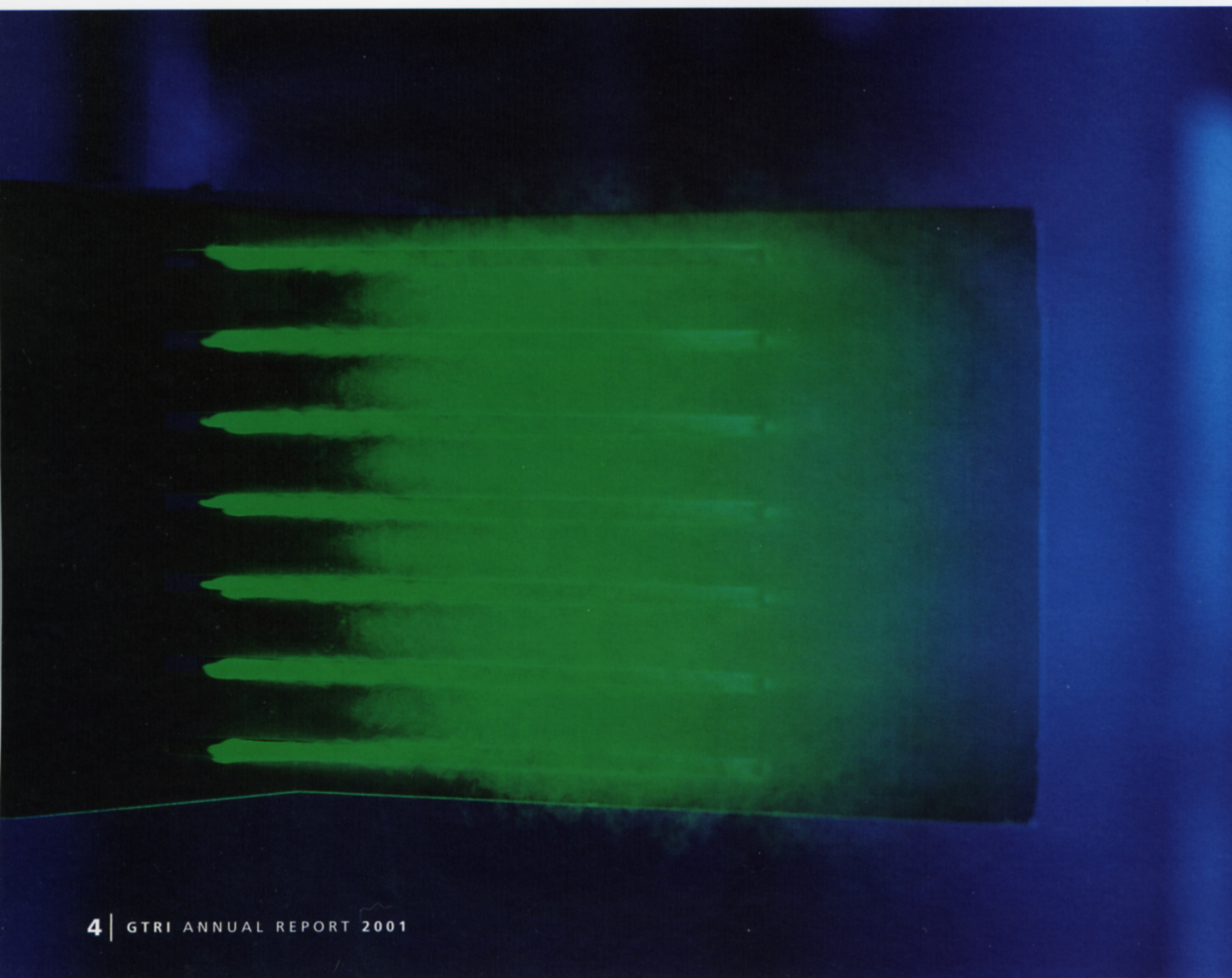
Future jet engines may generate no more sound than trucks or buses, thanks to design improvements under development at GTRI. With funding from the National Aeronautics and Space Administration (NASA), researchers are working with a distributed exhaust nozzle

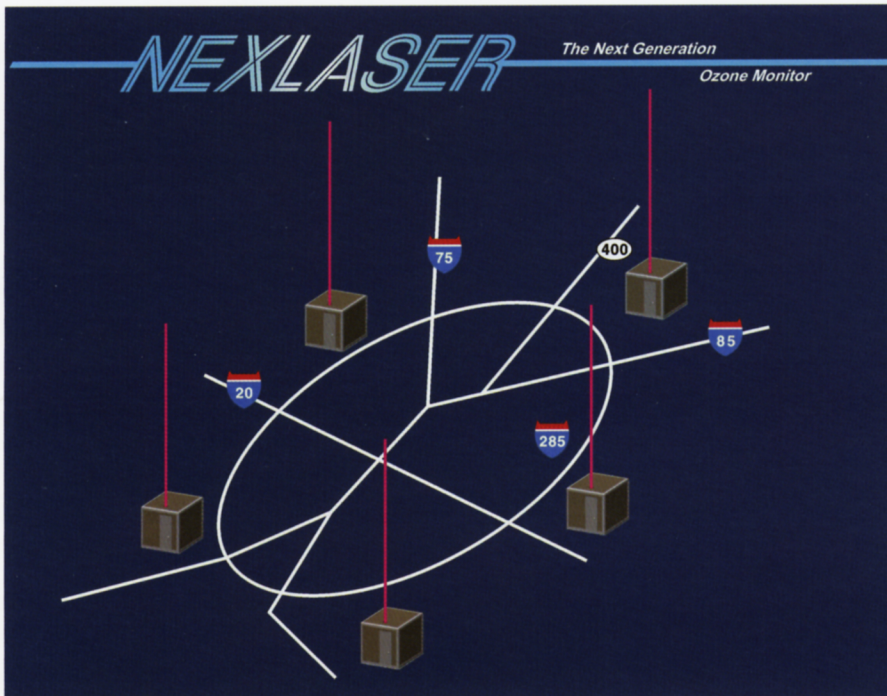
(DEN) concept that divides the exhaust stream into many smaller plumes.

The idea, based on work first patented by project subcontractor Northrup Grumman, is that numerous small jets, precisely spaced, will coalesce at a smaller-than-usual velocity, producing

low-amplitude, low-frequency noise. Detailed computational analysis, acoustics, and fluid dynamics data evaluating DEN are helping researchers better understand mechanisms of jet-engine noise reduction. Initial results appear extremely promising.

Researchers are working with a distributed exhaust nozzle (DEN) concept that divides exhaust streams into numerous smaller plumes, reducing noise.





The NEXLASER network of laser sensors will sample air up to two-and-a-half miles high, providing a three-dimensional picture of air quality every ten minutes.

Beaming Air Quality Data Home with NEXLASER

With air quality deteriorating nationwide and becoming a significant health issue, GTRI scientists are developing the "next generation" ozone monitor to answer key questions: Where is ozone created? Where does it go? What contributes to it?

And, most importantly, how can we use these answers to improve air quality?

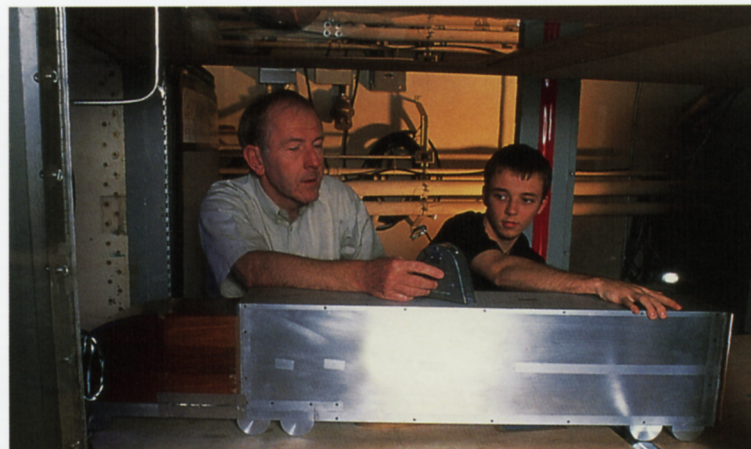
Previous monitoring happened at ground level, providing only two-dimensional data. NEXLASER, a network of laser sensors that will sample air up to

two-and-a-half miles high, will provide a three-dimensional picture every ten minutes. Ultimately, NEXLASER's resulting understanding of ozone and other pollutants will help cities worldwide develop improved air quality strategies.

Streamlining Heavy-Vehicle Performance

Advanced aircraft technology applied to heavy vehicles can save the U.S. trucking industry more than 1.7 billion gallons of diesel fuel each year.

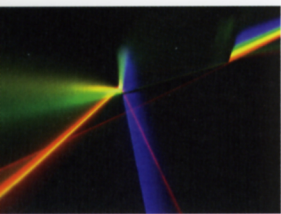
At GTRI, aerodynamicists are working with scale-model tractor-trailers to ascertain drag-reduction performance in a wind tunnel; data suggests up to 84 percent reduction in drag is possible. A full-scale fuel economy test will identify new-vehicle or retrofitted devices to reduce drag and control other aerodynamic forces, helping to achieve



Aerodynamicists are working with scale-model tractor-trailers to ascertain drag-reduction performance in a wind tunnel.

improved performance, handling capability, safety, and fuel efficiency. See also www.trucks.doe.gov, <http://gtresearch->

news.gatech.edu/newsrelease/flytruck.html, and www.gtri.gatech.edu/atas/aat/proj_trucksfly.html.



new collaborations

ILLUMINATING THE FUTURE

GTRI shines innovation's light on solutions for a varied group of customers. Among those we've performed initial work for are the Georgia Technology Authority, on a plan to outsource telecommunications and information services; and nursing education professionals, on ways to accelerate training from the classroom to the clinic. We're also helping the Santa Ana Pueblo of New Mexico get online.

What Do Vehicle Maintenance and Nursing Education Have in Common?

Both frequently have a "pipeline" problem—fleet management needs enough parts and well-trained people to keep vehicles running; our nation's health care system needs enough skilled nurses to ease the nationwide nursing shortage.

At GTRI's Logistics and Maintenance Applied Research Center (LandMARC), engineers are using multidisciplinary technology developed for aviation maintenance to accelerate nursing education from classrooms to clinical settings. Handheld tools such as personal digital assistants will allow nurses to review clinical guidelines, reference medical procedures, and access digitized classroom lectures. LandMARC is transferring technology for aircraft health and maintenance to human health and maintenance. See also <http://landmarc.gtri.gatech.edu>.



Technology originally developed for aviation maintenance is accelerating nursing education from classrooms to clinical settings.

State Technology-Building Team Turns to GTRI

When the newly formed Georgia Technology Authority (GTA) needed assistance on a major plan to outsource the state's telecommunications and information services, the authority's chief information officer turned to GTRI.

Through a multi-year contract, GTRI is working with GTA to evaluate infrastructure, leverage communications needs for maximum cost savings to taxpayers, and position the state as an "anchor tenant" in a world-class telecommunications network. Goals include improving access to state services and information, as well as promoting economic development by building a reliable, up-to-date infrastructure for high-speed telecommunications service aiding residents, businesses, and local governments statewide.



An intern with the Santa Ana tribe helps GTRI researchers set up an antenna permitting tribal wireless and Internet communication across the tribe's 80,000-acre homeland.

Bridging the Digital Divide—All 79,034 Acres of It

New Mexico's Santa Ana Pueblo used to schedule tribal council meetings with door-to-door contact. GTRI is helping them make that task a little easier today. With a new broadband wireless network linking the tribe's 12 government departments, 188 homes, and three villages across 80,000 acres, the tribe is entering the Internet age.

GTRI is helping the Santa Ana Pueblo create that intranet—featuring English and native-tongue Keresan content—and a government local area network (LAN). The wireless network will provide all tribe citizens Internet access, make the tribe self-sufficient and more information literate, and maintain ties to its cultural heritage. See also www.santaana.org.



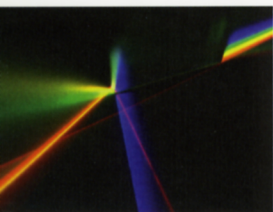
Brooks Air Force Base is home to an energy and sustainability lab that will address energy, environmental, and sustainability issues with help from GTRI.

Promoting Sustainability at Federal Facilities

Through the "City-Base" pilot program, the U.S. Department of Defense is transferring ownership of Brooks Air Force Base to the city of San Antonio, Texas. The city will develop the Brooks Technology and Business Park to create research partnerships among the U.S. Air Force, universities, and business.

GTRI, Texas A&M, and the University of South Carolina are creating the Brooks

Energy and Sustainability Lab at the base to help the U.S. Air Force identify technologies—including plasma arc technology for vitrifying or gasifying wastes and contaminated soil—that address energy, environmental, and sustainability issues. The partnership may become a model for other military facilities facing similar issues, and could significantly impact economic health in communities hosting large federal facilities. See also www.brooks.af.mil.



new collaborations

ILLUMINATING THE FUTURE



First on the scene during emergencies, firefighters, other safety personnel, and those needing their assistance may benefit from new technologies being integrated at GTRI.

CERTIP: Responding to First Responders' Needs

It's a nightmare scenario—a truck carrying hazardous materials overturns on a major interstate. Worse, a toxic chemical is released in a deliberate act of terrorism.

First responders to such scenes, typically local fire and police, may soon use new technologies from GTRI's Center for Emergency Response Technology, Instruction, and Policy (CERTIP). Those could include handheld device software that could help

responders identify chemical-biological agents; links to off-site medical personnel; and a command and control network providing Web access to photographs, building plans, contaminant plumes, and global positioning information for emergency vehicles. CERTIP is collaborating with local, regional, and national groups to make natural or man-made disasters less devastating. See also www.certip.org.



GTRI fuel cell research is conducted through the Center for Innovative Fuel Cell and Battery Technologies.

Collaboration Powers Fuel Cell Research

Developing clean, renewable energy sources is a major initiative at GTRI, where collaborative research has led to new materials and applications in fuel cells—particularly for wireless telecommunications, ultra-low-emission vehicles, and distributed stationary power supplies.

The work is conducted through the Center for Innovative Fuel Cell and Battery Technologies and involves researchers from GTRI; the National Electric Energy Testing, Research, and Applications Center; and Georgia Tech's schools of Materials Science and Engineering, Mechanical Engineering, Chemical Engineering, and Electrical and Computer Engineering.

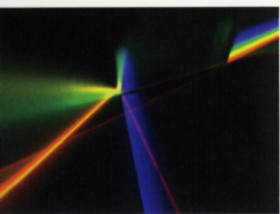
Speed Surfing the Internet

Schoolchildren and corporate executives alike can appreciate a recent GTRI design accomplishment: a super-high-speed optical switch that makes for speedier surfing on the Internet.

The new Ethernet switch allows transmission speeds of up to one gigabit of bandwidth per second over distances greater than 80 kilometers. Designed in conjunction with California-based manufacturer Canoga-Perkins and fast-tracked to market in only four months, the new switching device was scheduled to be used in BellSouth Corporation's broadband telecommunications installations in a major urban school system this past fall.

A new Ethernet switch designed by GTRI for Canoga-Perkins allows transmission of up to one gigabit of bandwidth per second over distances greater than 80 kilometers.

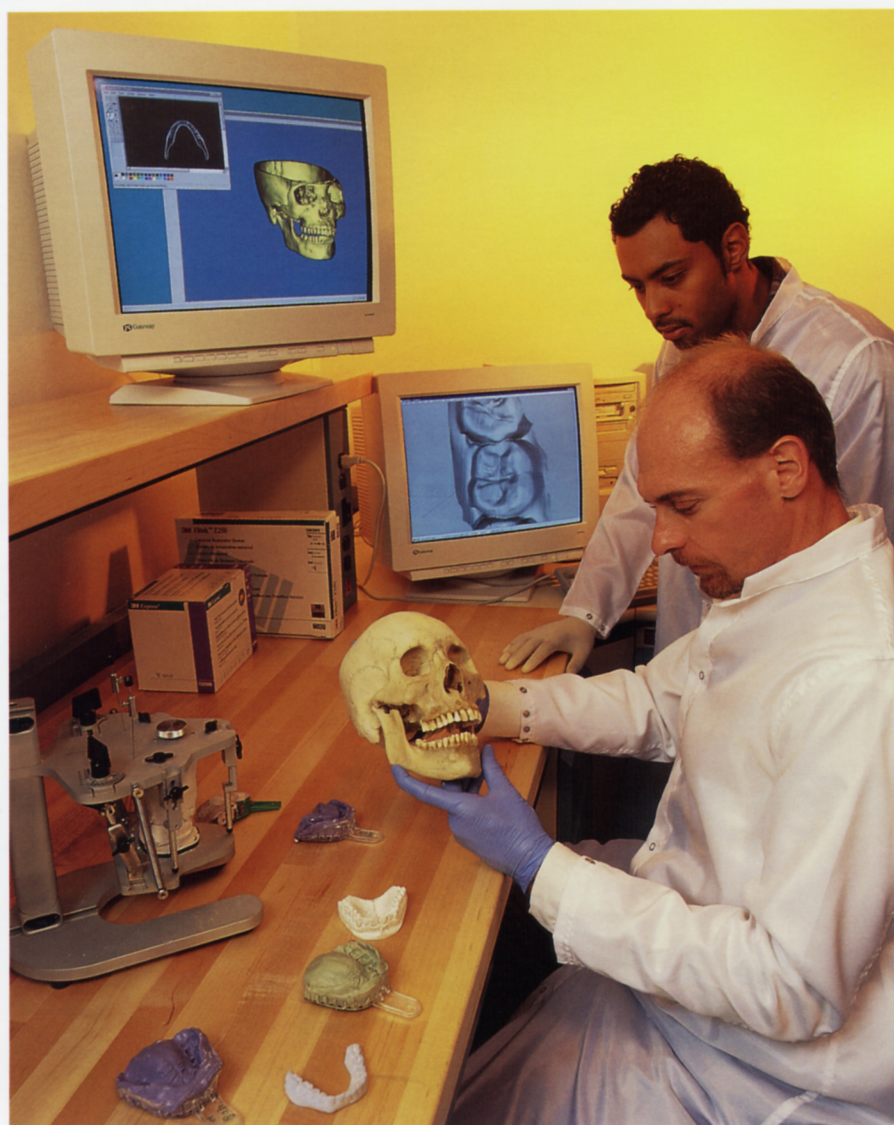




new applications

ILLUMINATING THE FUTURE

Shining a familiar light on unfamiliar subjects often results in innovative solutions. To that end, GTRI is applying computer modeling experience to a simulation for dentists and orthodontists. We're developing an automated computer vision system that could enhance poultry processing; and we're using a whole host of familiar technologies to meet the needs of emergency first responders.



Computer Simulation Brings New Dimension to Dentistry

GTRI researchers are sinking their teeth into a new application of simulation technology that could make corrective dental procedures faster and more effective.

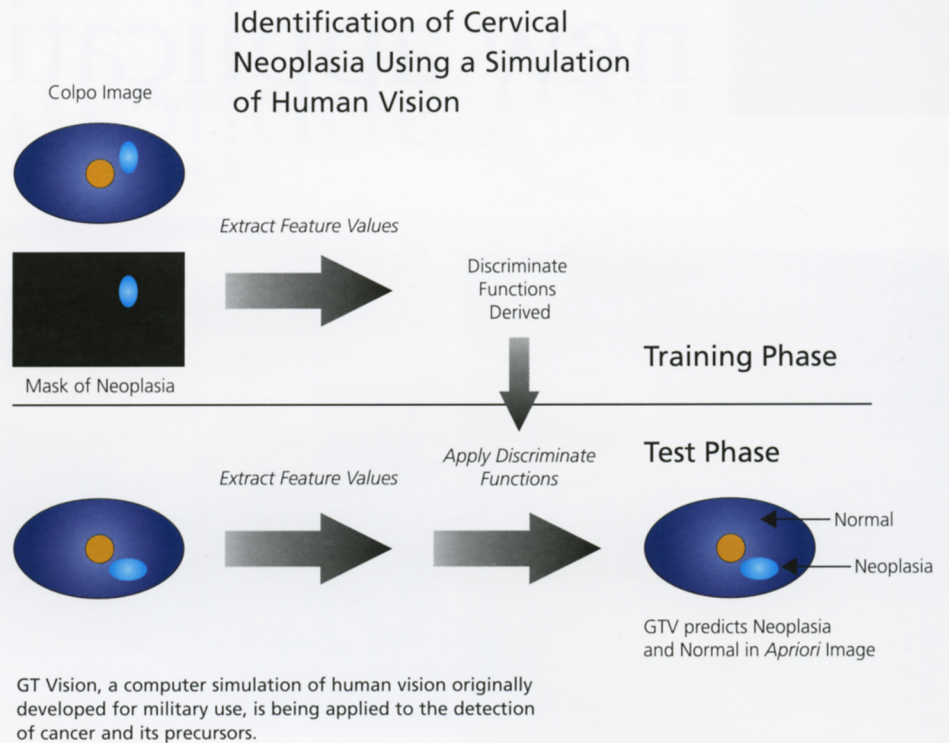
Working with two practicing dentists, engineers are developing a system for modeling an individual's teeth and jaw structure. The computerized, three-dimensional simulation relies on data from X-rays and teeth impressions to create a virtual model of the patient's mouth. The model can be used to fit crowns with amazing precision, or to plan orthodontic treatment requiring substantially less time in braces.

Working with two practicing dentists, GTRI engineers are developing a system for modeling an individual's teeth and jaw structure.

Using a Model of Human Vision to Better "See" Cancer

Cervical cancer is now the leading cause of death among women in the world's developing countries, partly due to a lack of trained physicians. Even in the developed world, the commonly used Pap test has a high error rate—between 60 and 70 percent.

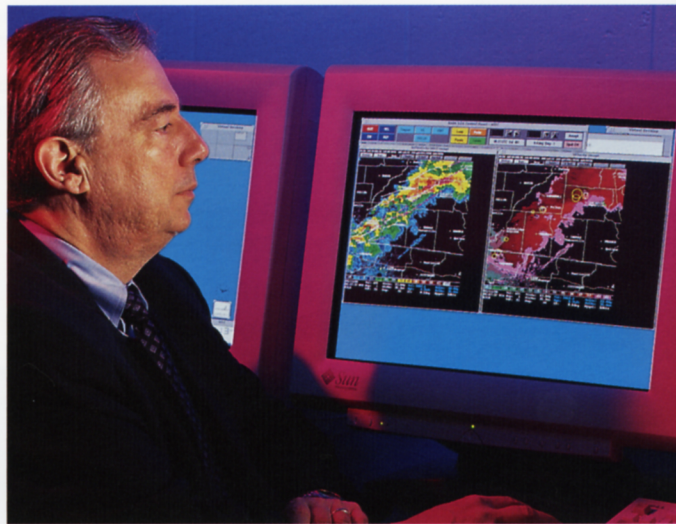
Researchers at GTRI are applying GT Vision, a computer simulation of human vision originally developed for military use, to detect cancer and its precursors. GT Vision actually models certain "thinking" processes associated with sight. Researchers believe the simulation also might be useful eventually for earlier and better detection of bladder and colon cancer.



A Future of Easier Breathing for Asthmatic Children

Scientists have long believed childhood asthma is likely caused by exposure to mold, ultrafine particles, ozone, and other pollutants—but until now, they couldn't determine an absolute causal link.

In collaboration with Emory University, GTRI researchers have developed "smart" instrumentation—a tele-monitor using commercially available sensors—to track environmental exposure and lung function, sending data to GTRI via e-mail. Given the 72 percent increase in asthma during the last decade, researchers hope an understanding of asthma's real causes will generate better treatment protocols.

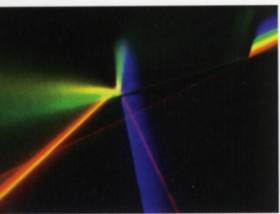


GTRI's Severe Storms Research Center is exploring ways of better detecting low-top, high-shear thunderstorms that cause short-lived, but damaging winds.

Getting the Jump on Tornadoes

GTRI's Severe Storms Research Center, in collaboration with the National Weather Service and the National Severe Storms Laboratory, is exploring ways to better detect the low-top, high-shear thunderstorms that are responsible for many of the short-lived events classified as weak tornadoes.

While such storms cause much of the low-to-moderate damage attributed to tornadoes, they may in fact be rotating downdrafts rather than true tornadoes. Identifying the distinction could prove useful in improving warning of these hard-to-predict, damaging events.



new applications

ILLUMINATING THE FUTURE



Revolutionizing Criminal Justice

At GTRI's Criminal Justice Science and Technology Center, interdisciplinary researchers help law enforcement and court system professionals adapt sophisticated technology—from complex multi-jurisdictional databases to infrared scanners—to the unique needs of the criminal justice system.

Law enforcement officers, judges, and court system professionals are adopting affordable technology on the job with help from GTRI.

Recent projects include a radar flashlight, computerized criminal “rap sheets” and court orders, optical and infrared investigative techniques, traffic safety monitoring, data security, and technology training for law enforcement personnel. A major goal: affordable, portable tools that bridge the gap between emerging technologies and practical, everyday police work.

New Product Development—Fast!

In the competitive world of high-tech product development, a top-notch research and development team can make all the difference.

At GTRI, the Commercial Products Realization Office provides commercial clients with one-stop outsource research and development capabilities drawing on multi-faceted GTRI expertise. Whether the work involves developing high-speed switching equipment, testing new fiber-optics applications, exploring the frontiers of video-programming and teleconferencing, or adapting existing technologies to a changing marketplace, the GTRI team approach brings business-like order to the chaos surrounding the birth of new products.

Innovative Vision System Promotes Efficient Poultry Processing

GTRI researchers are testing an automated computer vision system to detect bad birds—before they get too far down the processing line and pose a food safety threat.

Screening for systemic defects in chickens is currently done by quality control personnel, whose accuracy can be impacted by fatigue and sometimes lead to line slowdowns or stoppages. Ultimately, the detection system will make decisions about what it sees and signal a device to remove defective chickens, improving processing line efficiencies.



An automated computer vision system being developed at GTRI could detect defective chickens and signal removal of them from processing lines.

Technology and Training for Better Emergency Response

The victim was incapacitated by a chemical release in a laboratory. First responders used a new radar flashlight to locate her. Handheld "decision aid" computers guided responders through a decontamination checklist. A GIS display provided a bird's-eye view of the area. Doctors elsewhere viewed her vital signs on a website and prescribed an antidote.

All this happened during a Project Atlanta training exercise, a program of GTRI's Center for Emergency Response Technology, Instruction, and Policy (CERTIP) that was funded by the Marine Corps Warfighting Lab. Project Atlanta focused on advanced technologies for first responders that will eventually benefit real victims in real chemical-biological disasters.



Above: First responders like these participated in GTRI's Project Atlanta training, which addressed application and integration of technology during chemical-biological disasters.

Right: Handheld "decision aid" computers guided Project Atlanta participants through a decontamination checklist.



Protecting Data from Fraud

A 100-year-old mathematical curiosity is finding new life in maintaining electronic data.

Benford's Law predicts the frequency of certain digits in a particular set of numbers. The law is useful for detecting anomalies by comparing the actual versus predicted number of times a digit appears. GTRI engineers are developing a digital analysis model for a financial data warehouse that combines Benford testing with business operations analysis, thus protecting data integrity and helping to improve business processes, too.



Benford's Law, which predicts the frequency of certain digits in particular sets of numbers, is being used by GTRI researchers to enhance business processes.

GTRI laboratories and field offices

Headquartered in Atlanta, GTRI also has laboratories and field offices at eight additional locations in the United States:

Albuquerque, New Mexico
■ New Mexico Field Office

Arlington, Virginia
■ Washington, D.C. Field Office

Atlanta, Georgia
■ GTRI Headquarters
■ Electronic Systems Laboratory
■ Electro-Optics, Environment, and Materials Laboratory
■ Information Technology and Telecommunications Laboratory
■ Signatures Technology Laboratory

Cobb County, Georgia
■ Aerospace, Transportation, and Advanced Systems Laboratory
■ Sensors and Electromagnetic Applications Laboratory

Dayton, Ohio
■ Dayton Field Office

Eglin Air Force Base, Florida
■ Eglin Field Office

Huntsville, Alabama
■ Huntsville Research Laboratory

Orlando, Florida
■ Orlando Research Operations

Warner Robins, Georgia
■ Warner Robins Field Office

GTRI Intergovernmental Personnel Agreements

GTRI researchers make added contributions to national technology and policy development by working in national organizations through the Intergovernmental Personnel Agreement (IPA) Program. This program allows scientists and engineers to collaborate directly with colleagues in federal agencies while retaining their GTRI faculty status. GTRI faculty who served as IPAs during FY 01 include:

Arlington, Virginia
■ Larry E. Corey, Defense Advanced Research Projects Agency, Special Projects Office
■ Parker C. Horner, Department of Defense Washington Headquarters Service Department, Personnel and Security Directorate
■ Benjamin P. Riley, Office of Naval Research
■ Thomas J. Singleton, Office of Naval Research
■ Juan A. Vitali, Office of Secretary of Defense, Operational Test and Evaluation

Atlanta, Georgia
■ Richard S. Combes, Department of Energy, Atlanta Regional Support Office
■ Rochie E. Tschirhart, Army Environmental Policy Institute
■ W. Richard Wright, Army Environmental Policy Institute

Chantilly, Virginia
■ Eric E. Sundberg, National Reconnaissance Office

Hampton, Virginia
■ Gregory T. Johnson, Office of Naval Research

Huntsville, Alabama
■ James H. Kirkland, U.S. Army Space and Missile Defense Command
■ Tilton D. Price, U.S. Army Space and Missile Defense Command

Kirtland Air Force Base, New Mexico
■ Thomas M. Davis, Air Force Research Laboratory
■ Marion L. Williams, Air Force Operational Test and Evaluation Center

Newport, Rhode Island
■ Mark B. Moffett, Naval Undersea Warfare Center

Continued on next page.



Norfolk, Virginia

- Charles T. Mauro, Operational Test and Evaluation Force

Orlando, Florida

- Steven C. Gordon, Air Force Agency for Modeling and Simulation

Quantico, Virginia

- Marty G. Meyer, Office of Science and Technology, Marine Corps Systems Command

Redstone Arsenal, Alabama

- Steven Smith, U.S. Army Aviation and Missile Command

Washington, D.C.

- Sharon A. Bucci, Department of the Army, Directorate of Environmental Programs
- Gary Carter, Office of the Chief of Naval Operations
- Joe Eash, Center for Technology and National Security Policy, National Defense University
- Catherine B. Joseph, U.S. Environmental Protection Agency, Office of Pesticide Programs, Health Effects Division

Wright Patterson Air Force Base, Ohio

- F. Paul Johnson, Air Force Research Laboratory
- Zdzislaw H. Lewantowicz, Air Force Research Laboratory
- Joseph A. Sugrue, National Air Intelligence Center
- Stephen E. Woodall, Activity Security, Air Force Research Laboratory

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C. Tom Burbage, Executive Vice President,
Lockheed-Martin Aeronautical Systems

Gerald J. Carey Jr., U.S. Air Force, retired;
Chairman, GTRI External Advisory Council;
Associate Director Emeritus, Georgia Tech
Research Institute

Robert S. Cooper, President, CEO and
Chairman of the Board of Directors,
Atlantic Aerospace Electronics Corporation

Susan M. Coughlin, Director and COO,
American Trucking Association Foundation

Gerald P. Dinneen, Foreign Secretary, U.S.
National Academy of Engineering, retired

Ben Dyer, General Partner, Cordova
Intellimedia Ventures, LP

H. Allen Ecker, Senior Vice President-Technical
Operations and Chief Technical Officer,
Scientific-Atlanta, Inc.

Robert T. Marsh, U.S. Air Force, retired;
Director and Chairman of the Board, CAE
Electronics, Inc., and Converse Government
Systems Corporation

Michael Polak, Georgia State Senator

John Scott Redd, U.S. Navy, retired; Chairman
of the Board, President and CEO,
NetSchools Corporation

Glen P. Robinson, Chairman,
Crispaire Corporation

Richard A. Royal, Georgia State Representative

Joseph A. Saloom, Technology Consultant

James Tysinger, former Georgia State Senator

Vincent Vitto, President and CEO, The Charles
Stark Draper Laboratory, Inc.

John J. Welch Jr., U.S. Air Force, retired;
Executive Vice President,
Burdeshaw Associates

new members

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our mission and values

GTRI will plan and conduct focused programs of innovative research and development, education, and economic development that advance the global competitiveness and security of Georgia, the region, and the nation.

GTRI's business philosophy includes the following core values:

- Personal and organizational integrity underlie all that we do.
- A commitment to quality, value, and customer satisfaction defines our future.
- Competence and creativity are the foundations of our success.
- An open, supportive environment fosters efficiency and teamwork.
- Continuous development of our people enhances individual achievement.



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