Editor's note: The following article originally appeared on the ITS website on March 15, 2002.

Intelligent Transportation Systems Have National Security Applications, Senate Panel Told

WASHINGTON, DC, March 15, 2002 - Ensuring the security of America's surface transportation is a new purpose for intelligent transportation systems (ITS), a U.S. Senate panel was told today.

Chelsea C. White III, representing the Intelligent Transportation Society of America, identified nine security-related applications of ITS that should be considered in congressional debate on reauthorization of transportation funding. The current legislation will expire September 30, 2003. His testimony came before a panel of the Committee on Environment and Public Works.

White, ISyE Chair in Transportation and Logistics at the Georgia Institute of Technology and a member of ITS America's Board of Directors, said, “in light of the new security paradigm, ITS research and deployment must continue to flourish.” In noting the use of ITS on September 11 last year, White said, “without ITS systems in place, the evacuations of Washington and New York would have certainly been slower and less orderly.”

In describing a wide range of security-related technologies, White urged more cooperation between public safety agencies and transportation management agencies. He noted that the new ten-year vision program recently published by ITS America includes security as a prominent goal but reiterates long-standing ITS objectives such as highway safety, economic benefits, mobility, and energy conservation.

“Without ITS systems in place, the evacuations of Washington and New York would have certainly been slower and less orderly.”

— Chip White

White said, “The new technologies hold the promise of continuing to provide our citizens the most secure, the safest, and the most efficient transportation system in the world. We look forward to working with you in designing programs that will help keep this promise.”

The panel also heard today from Michael Walton, faculty member at the University of Texas and vice-chair of ITS America. Walton also chairs a committee of the Transportation Research Board and spoke in support of a Future Strategic Highway Research Program (F-SHRP).

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Trucking Industry Program Finds a New Home at Georgia Tech

Georgia Tech and ISyE are now home to the Trucking Industry Program (TIP), a research and education center that helps improve the U.S. trucking industry and the quality of its jobs by providing information to the trucking industry, its customers, and government regulators. The TIP, established in 1995 with financial assistance from the Alfred P. Sloan Foundation, was formerly known as the University of Michigan Trucking Industry Program (UMTIP). Its initiatives involve researchers from the University of Michigan and Michigan State, Wayne State, and Duke universities.

TIP is directed by Chelsea C. White III, who recently joined the ISyE faculty as the Transportation and Logistics Chair. Dr. White comes to ISyE from the University of Michigan, where he served as professor of Industrial and Operations Engineering, Electrical Engineering, and Computer Science as well as director of the Intelligent Transportation Systems Research Center and co-director of the University of Michigan Trucking Industry Program.

The Trucking Industry Program's research projects bring together engineers, economists, and industry experts, along with doctoral students, to study broad issues of importance to the industry. It has attracted continued on page 3
Message from the Chair

Dear Alumni –

With this letter, I am completing my seventh month as school chair. I’ve learned a lot about budgeting, annual reviews, promotion, tenure, and so on. Also, of course, I have learned much from our faculty, staff, students, sponsors, and you. Overall, the ISyE community is large, diverse, and vibrant. People are impacting their professions and communities, as well as changing the world in many ways.

One of the things that I have learned as I listened to you is that consistently being the No. 1 program in IE is important—you like seeing the U.S. News & World Report’s annual rankings. At the same time, many of you have articulated, in a variety of ways, the importance of reaching a higher level, perhaps redefining what it means to be No. 1.

There are many ways in which we can reach a higher level. There are never-ending research challenges in our complex world. We are pursuing innovative ideas in logistics, manufacturing, health systems, and financial modeling, to name just a few areas. These pursuits will inevitably result in new course offerings and eventually new degree programs.

We also are considering how to best support our various constituencies. For example, we have been discussing how we can significantly enhance the undergraduate experience in ISyE. Beyond course offerings and research opportunities, this should include new ways to support our students. While we need to fill our students’ heads with knowledge and help them to gain skills, we also can better support them to become the people they aspire to be. In addition, we are pursuing new ways to support you, our alumni.

Elsewhere in this newsletter, you will read about the ISyE Young Alumni Business Network and its web-based component, ISyE BizNet. This is a first step towards an ambitious goal. We want to promise—and deliver—that after you matriculate at ISyE, we will support you with leading-edge knowledge and best practices for the rest of your life. The Internet and related technologies make this promise feasible.

New research initiatives, enhanced undergraduate experiences, and web-enabled alumni support are key elements of moving to the next level in excellence and impact. I’ll look forward to hearing your reactions to these ideas and, of course, your ideas for how ISyE can best reach new levels of success.

With warm regards,

William B. Rouse

H. Milton and Carolyn J. Stewart Chair and Professor

A total of 140 undergraduate IE students, more than in any other school at Tech, were honored in April during the annual Women in Engineering awards banquet. The event salutes the success and achievements of female engineering students who have a cumulative grade point average of 3.4 or above and have demonstrated outstanding leadership qualities on and off campus.

The keynote speaker was Jennifer Cistola, BIE 1981, vice president of North American Marketing for Scientific-Atlanta. She outlined the ten most important things she learned during her time at Georgia Tech and her career in the corporate world. They include being able to balance demands, maintain a positive attitude, continue to learn, and inspire the people around her. Cistola also recounted the hard work and countless hours of studying that characterize her memories of undergraduate life at Tech.

Mimi Philobos, a professor in the School of Civil and Environmental Engineering, has organized the event since its inception in 1999. That year, the event drew about 100 attendees, and Philobos, who also directs the Women in Engineering Program at Tech, vowed she would make it an annual affair. Philobos closed the evening with words of thanks and encouragement. “Your hard work has been recognized by all of your peers,” she said. “You are the leaders.”
BizNet to Serve as ISyE Network

Georgia Tech IEs will soon have a new outlet for networking with peers. The Young Alumni Business Network, or BizNet, is expected to debut this fall. The web-based communication network, based on MIT’s Forum, is designed to provide alumni with lifelong support to maintain relationships and stay current on industry knowledge.

“A lot of schools are already doing this,” said Ruth Gregory, leader of the BizNet project. After joining the network, users will have a password that allows them to access resources available only to ISyE alumni, including a calendar, scheduled meetings, knowledge updates, and discussion groups. BizNet also will facilitate meetings of alumni groups. “We’ll start in Atlanta, but we want to expand the opportunities into other cities,” Gregory said.

Despite the word “young” in its official title, the network is expected to connect alumni of all ages, especially in situations where older alumni can act as mentors or offer tried and true expertise. BizNet is a way of facilitating communication, and there are an infinite number of topics for discussion: anything from venture capitalism and incubators to recruiting, interviewing, and politics. “Tech IE’s work within a broad variety of professions, and their experience is a very valuable resource. The exchange of information is a simple idea, but the result can be overwhelming,” said Gregory. The network also will host a database of alumni biographies and interests. Although the network will be run from campus, staff hope that alumni interests will drive the programming issues.

Undergraduate students also will be welcomed to the network. “We want to provide them the opportunity to appreciate the business issues they will face later,” Gregory said.

School chair Bill Rouse describes himself as head cheerleader for the project. “Our overall goal is for ISyE alumni to be able to count on the school to support their lifelong needs for knowledge, best practices, etc.,” he says. “ISyE BizNet is our next step toward achieving this goal.”

New Program Prepares Engineers to Communicate in the Workplace

ISyE has long been known for graduating capable engineers. A new project, directed by Judith Shaul Norback, ISyE director of Workplace and Academic Communication, ensures that these graduates also leave with the skills necessary to communicate their engineering prowess to employers and clients.

Why are communication skills more important than ever for engineers?

First, in today’s workplace, engineers increasingly interact with non-engineers such as marketing and call center personnel, their chief technology officers, and chief executive officers. Second, technological communication tools have become central to engineering work. The new tools, which recent graduates often are assumed to know, include various e-mail systems, Microsoft Office, Microsoft Project, and Access. Third, practicing engineers are increasingly responsible for their own communication, including

Intelligent Transportation Systems

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Such a program, he said, would produce a method of “analyzing renewal needs, evaluating alternative strategies, and developing tools and technologies highway agencies need to implement a new model of highway renewal.”

The new and accelerated research effort, as part of a reauthorized transportation program next year, would require approximately $450 million to $500 million over a six-year period, he said.

For more information, contact Don Knight at 202.484.4581 or dknight@itsa.org.

Trucking Industry Program Finds a New Home at Georgia Tech

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approximately $4 million in research funds and has supported a highly interdisciplinary group of twenty-two faculty and more than thirty-five students since 1995. Research centers on three broad areas: Labor and Human Resources, Operations and Technology, and LTL Industry Case and Benchmarking Studies.

TIP is widely known for implementing the most comprehensive survey ever taken of truckers at truck stops across the United States. The survey, which had a substantial effect on drivers’ work hours, is often cited for presenting the first accurate portrait of truck drivers, their quality of life, and their views on the industry.
New Program Prepares Engineers to Communicate in the Workplace
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wordsmithing and proofreading once done by secretaries. Fourth, practicing engineers interact with others in meetings. The advent of office technology has not erased or reduced the need for personal communication as had been predicted. If anything, office technology has increased the need for and opportunities for personal communication.

Norback’s program, which was first used during spring semester, is not a stand-alone course; it is designed to complement assignments in the senior design class. As students work through their engineering project, they receive input and feedback on oral and graphic presentations as well as written reports. Norback believes it is the only program of its type in the country. “I interviewed senior executives in the workplace on an empirical basis to learn their criteria for employees,” she said. “I also got permission from corporations to use their materials in the class, listing a bogus name.”

Because the program integrates into the design course, Norback works closely with the professors who teach the course. Assistant Professor Julie Swann agrees that the students benefit from the added course dimension. “One student said he particularly liked the peer evaluations during class presentations. It helped the students focus and consider more effective communication tools.” Swann says. “From the panel of alumni, the students heard about communication as it really is in the workplace, and learned that things like grammar, conciseness, and organization really do matter.”

Some examples of techniques shared in the program include: how to make good eye contact; when to use non-technical language; how to assess and respond to evidence of a lack of understanding; avoiding the use of inappropriate gestures; and how to respond to questions and comments.

Initial funding from the program comes from Mel Hall, BIE 1967, and Hayne McCondichie, BIE 1952, MSIE 1953, in addition to contributions from the Georgia Tech Foundation through the College of Engineering. The College is watching ISyE’s efforts closely, Norback said, and would like to utilize the program in all the engineering disciplines.

“The students can’t get enough,” she said. “They want more feedback. They’re asking why they didn’t get any of this before their senior year.” Norback and ISyE hope to expand the program into the junior and sophomore years as soon as resources are available.

Students learn communications skills they will need in the workplace.

EPICS, MICROSOFT PARTNERSHIP DONATES SOFTWARE TO HANDS ON ATLANTA

Hands On Atlanta (HOA) is a nonprofit organization that helps individuals, families, and corporate and community groups find flexible volunteer opportunities at more than 400 service organizations and schools in the metropolitan Atlanta area. Every year, it sponsors HOA Day, when approximately 15,000 volunteers come together to work at more than 200 projects sites in and around Atlanta.

Thanks to the partnership of the nationally based Engineering Projects In Community Service (EPICS) and Microsoft Corporation, a generous software gift was recently donated to HOA. This software, Microsoft Project 2000, will allow the organization to implement a system to improve its special events planning.

During spring semester 2002, an EPICS team of senior design students at ISyE needed this scheduling software to complete a project for HOA. Microsoft’s University Relations (Microsoft Research) is a major sponsor of the EPICS program and allowed the software to be donated.

A team of senior design students at ISyE used the donated software for a Hands On Atlanta project.

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New Book Release on Col. John R. Boyd

Col. John R. Boyd, BIE 1963, is known as one of this country’s greatest fighter pilots and most brilliant military theorists. He has been described as the greatest secret hero of the American military, transforming the way military aircraft were designed with his theory on “Energy-Maneuverability.” Boyd was often at odds with Air Force officials, but his revolutionary ideas are now acclaimed as some of the most influential thinking about conflict.

A new biography of Boyd will be available this fall. Written by Robert Coram of Atlanta, Boyd: The Fighter Pilot Who Changed the Art of War, will be published by Little, Brown & Company. One area the book will explore is why Boyd is heavily respected by the U.S. Marines but virtually ignored by the Air Force. Some say it is because he made as many enemies as friends during his thirty-year career.

When Boyd died of cancer in West Palm Beach in 1997, Charles C. Krulak, commandant of the U.S. Marine Corps, eulogized him as “a towering intellect who made unsurpassed contributions to the American art of war.” He is credited with the development and design of both the F-15 “Eagle” and, as leader of the so-called “Fighter Mafia,” the F-16 “Fighting Falcon.” In addition to the “Energy Maneuverability Theory,” he developed the concept of the “OODA Loop” (Observation, Orientation, Decision, Action) that is now standard in both the U.S. military and American business.

Boyd never published anything outside technical studies, but his ideas continue to have an impact on the military, academia, and business. For more information on Boyd and his theories, visit www.belisarius.com.

Francois Sainfort Appointed to George Professorship

Francois Sainfort has been appointed to the William W. George Professorship in Health Systems.

Professor Sainfort joined the School of Industrial and Systems Engineering in 2000 as a professor and director of the Health Systems Research Center. Prior to his arrival at Georgia Tech, he was a professor of Industrial Engineering at the University of Wisconsin-Madison, with joint appointments in the Departments of Preventive Medicine and Biomedical Engineering. During that time, he also was center director for the Center for Quality and Productivity Improvement and program director for the Health Systems Engineering graduate program.

Professor Sainfort's research interests focus on consumer and medical decision-making, health care informatics, quality assessment and management in health care, and evaluation of medical technologies. He has served as principal investigator on more than $6 million in contracts and grants.

“It is a great honor for me to receive the William George Professorship,” Dr. Sainfort said. “Bill George’s shining example of excellence in philanthropy, scholarship, innovation, and dedication serves as a beacon for my leadership in Health Systems at Georgia Tech. I am proud to be entrusted with his vision and am committed to infusing the Health Systems program with the type of energy that has become Bill George’s hallmark.”

Dr. Sainfort said this vision includes the development and application of state-of-the-art:

- Operations research and management sciences methods and theories for health care delivery systems modeling, analysis, and improvement;
- Operations research methods and theories for disease modeling, treatment, management, and control; and
- Human-computer interaction methods and theories as well as information and decision support technologies to improve the delivery of health care services.

The author of more than 75 refereed publications, Dr. Sainfort has been published in health care journals such as Health Services Research, Medical Care, Medical Decision Making, and Medical Care Research and Review. His research also has appeared in industrial engineering journals such as Operations Research, Journal of Multi-Criteria Decision Analysis, Organizational Behavior and Human Decision Processes, and International Journal of Human-Computer Interaction.

Dr. Sainfort is an expert consultant for the health care industry. His clients include health care delivery organizations, medical devices companies, clinical laboratories, and pharmaceutical companies. He has been awarded the Joseph Orlicky Award for the Best Innovation in Manufacturing and Services Operations by the Production and Operations Management Society; the Stoelting Award in Management of Technology; and competitive doctoral fellowships from Entraide Universitaire Mondiale du Canada and the Ministry of National Education in France.

William W. George, BIE 1964, is chairman of Medtronic, Inc. He established the endowed professorship in 2001 so that ISyE could hire full-time faculty to advance the health system’s graduate program and guide its future.
Don Giddens
Named College of Engineering Dean

Don P. Giddens, one of the nation’s leading pioneers in biomedical engineering, has been named dean of the College of Engineering. He will assume his new post July 1, pending approval from the Board of Regents.

Giddens, who has been associated with Georgia Tech for more than thirty years, is credited with catapulting the bioengineering program to national stature. Last year, it was ranked sixth in the nation by U.S. News & World Report.

He joined Georgia Tech in 1968 and served as a faculty member and administrator for almost twenty-five years before accepting an appointment as dean of the engineering school at Johns Hopkins University in 1992. During his tenure at Johns Hopkins, the engineering school rose from the unranked “second tier” in 1993 to 17th in U.S. News & World Report’s “Best Graduate School” engineering rankings in 1997.

Returning to Tech in 1997, Giddens became chair of the Georgia Tech-Emory University partnership in bioengineering, which led to the creation of what is now the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University. This partnership between a public university with a top engineering school and a private university with a highly regarded medical school is the first of its kind in the nation.

A member of the National Academy of Engineering, Giddens is a fellow of ASME; a founding fellow of the American Institute of Medical and Biological Engineers; and a fellow of the Arteriosclerosis, Thrombosis, and Vascular Biology Council of the American Heart Association. He earned a BAE and MSAE in aerospace engineering and a Ph.D. in aerothermodynamics, all from Georgia Tech.

Giddens succeeds Jean-Lou Chameau, who vacated the dean position last year to assume his new role as Provost. J. Nari Davidson, an administrator and faculty member at Georgia Tech for nearly thirty years, served as interim dean.

ISyE Faculty and Staff News

Assistant Professor Shabbir Ahmed has been awarded a Career Award from the National Science Foundation. Dr. Ahmed’s interests include stochastic programming and computational optimization with applications in facility location, network design, capacity planning, and finance.

Congratulations to Administrative Coordinator Jennifer Harris, who is celebrating ten years of service to Georgia Tech.

Professor Craig Tovey, working with Dr. Ivan Chase from the Stony Brook University, has published “Individual Differences versus Social Dynamics in the Formation of Animal Dominance Hierarchies,” which appears in the April 16th, 2002, issue of Proceedings of the National Academy of Sciences. Their research shows that biological facts do not rule the social lives of animals even as “simple” as fish; group dynamics play a major role.

EPICS, Microsoft Partnership Donates Software to Hands On Atlanta
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The software has an estimated retail value of $20,000. MS Project 2000 will be used by HOA to implement a tracking system for planning and organizing special events. “The software will allow us to manage our day-to-day activities and other detailed projects for special event planning,” said Tony Chan, BIE ’94, a planning and evaluation specialist at HOA.

EPICS is a national organization founded at Purdue University with funding from the National Science Foundation and the Corporation for National Service. The purpose of EPICS is to enhance student volunteerism by providing large student teams with opportunities to contribute to community service and nonprofit organizations on long-term projects while earning academic credit.

ISyE Professor Dr. Faiz Al-Khayyal and Electrical Engineering Professor Dr. Mark Smith serve as program directors for EPICS. Artexas Davis is the EPICS Program Coordinator. For additional information on the EPICS program, please visit our website at www.isye.gatech.edu/epics/
FACULTY NEWS

Tech Professor Turned Astronaut Makes Perfect Landing

Imagine meeting an astronaut at age seven or eight. You would probably remember that for the rest of your life. It might even inspire you to reach for the stars yourself.

Astronaut and former ISyE faculty member Mike Massimino gave that chance to a group of first-graders from Westminster School and third-graders from Centennial Place Elementary School when he returned to Georgia Tech on May 15. Telling the children that he had been fascinated by space travel since watching the first moon landing as a boy, Massimino said he is proof that “dreams do come true.”

The engineer-turned-astronaut flew into space aboard the shuttle Columbia in March for a ten-day mission to upgrade the Hubble telescope. He spoke to the children about his experience, saying he was profoundly moved by his first glimpse of our planet from above. “The Earth is beautiful to look at,” Massimino said. “It was just the most magnificent thing I’ve ever seen.”

He showed his young audience film and still photos depicting scenes of the mission, from the shuttle lift off through a spectacular cloud cover to images of the crew performing their work as they floated in space, tethered to the Columbia. During five space walks, the crew upgraded the Hubble telescope with new solar arrays, an advanced camera, and a cooling system. They also installed a new power control unit to route electricity from the arrays to batteries and instruments and a new reaction wheel assembly to help point the telescope.

Massimino came to Georgia Tech in 1995 to teach human-machine systems engineering classes and conduct research on human-machine interfaces for space and aircraft systems. He left a year later when NASA tapped him as an astronaut candidate. Although it was brief, Massimino said he and his family—his wife and their two children—enjoyed their time here.

During a question-and-answer session, the astronaut responded to wide-ranging queries from the kids about what it was like to travel into space. Following is a sampling of their questions and his responses:

On the physical effects of being in space: At first, Massimino said, he noticed that his fellow astronauts’ faces were puffy, because there was no gravity to hold down the fluid in their bodies. Also, he hadn’t much appetite for food initially. “After about a day or so, your body starts adjusting,” he said.

William Cook to Hold New Chandler Chair in ISyE

William J. Cook joins ISyE this summer as the Russ and Sammie Chandler Chair in Industrial and Systems Engineering. Dr. Cook comes to Tech after serving as a visiting professor in the Program for Applied and Computational Mathematics at Princeton University. He holds a Ph.D. in Combinatorics and Optimization from the University of Waterloo as well as a B.A. in Mathematics from Rutgers University and an M.S. in Operations Research from Stanford University.

Dr. Cook’s research interests are in the two closely related fields of integer programming and combinatorial optimization. His research on the “traveling salesman problem” (TSP), including the solution to a 15,112 TSP tour of cities in Germany, can be viewed at www.math.princeton.edu/tsp. This site is used widely by other institutions as a teaching and research tool.

Before joining Princeton, Dr. Cook was the Noah Harding Professor of Computational and Applied Mathematics and director of the W.M. Keck Center for Computational Discrete Optimization at Rice University. He also spent six years in industry with Bell

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Communications Research. Before that, he was an associate professor at Columbia University; a visiting associate professor at Universität Bonn, Germany; an assistant professor at Cornell University; and a research fellow at Universität Bonn.

Dr. Cook is active in the professional community, serving as chair of the Ninth Conference on Integer Programming and Combinatorial Optimization in 2002 and as organizer of Institute for Mathematics and its Applications' Special Year on Optimization, 2002-2003. He is also editor-in-chief of Mathematical Programming, Series B; associate editor of Mathematical Programming, Series A, INFORMS Journal on Computing, and Mathematics of Operations Research; and on the editorial board of SIAM Journal of Discrete Mathematics. He is the author, with W. Cunningham, W. Pulleyblank, and A. Schrijver, of Combinatorial Optimization, and co-editor of Combinatorial Optimization and Polyhedral Combinatorics. He has written numerous published papers and delivered a significant number of lectures, both nationally and internationally.

Dr. Cook is excited about joining the ISyE faculty. "At a recent mathematical optimizers workshop in France, one of the senior participants stated, 'Georgia Tech is the center of the world.' And I think he is right. I hope to help ISyE continue to attract the best graduate students from home and abroad and to work extensively on projects involving large-scale optimization," he said.

The Russ and Sammie Chandler Chair in ISyE is named for Russ Chandler, IE 1967, and his wife Sammie, generous donors to a number of Georgia Tech programs.

José Bolívar Founds Georgia Tech Dynasty with IE Degree

Georgia Tech is often a family tradition. José A. Bolívar, BIE 1949, a Cuban immigrant, began a Tech dynasty that continues to grow. When his budding career was initially interrupted by the Cuban revolution, he left for Miami with only $32 and his diploma. Now he is the father of five children—two of whom graduated from Georgia Tech—and the operational vice president of Bacardi Corporation in Puerto Rico.

Bolívar was born in Santiago de Cuba in 1926. He attended high school near Tampa, Florida, at St. Leo, now St. Leo College, before entering Georgia Tech in 1945. He graduated in 1949 and returned to Santiago de Cuba to work with Bacardi Corporation. Bolívar's grandfather, Colonel Federico Perez Carbo, former mayor of the city of Santiago de Cuba and governor of the Province of Oriente, was a personal friend of Facundo Bacardi, one of Bacardi's founders. The Spanish authorities had imprisoned them both for supporting the Cuban war of independence. This background provided the young engineer with a tie to the Bacardi Company as well as a dislike of authoritative and dictatorial regimes.

Because the main product line of Bacardi was beer, Bolívar went to New York City to study at the United States Brewer's Academy. He earned a Brew Master's certification in 1951 and returned to Cuba to work at Bacardi. With the advent of the 1959 Castro Revolution, the Bacardi facilities in Cuba were nationalized. Bolívar left Cuba in 1960. While his family settled in Miami, he worked as an engineer at Bacardi's Mexican facility.

Initially, Bolívar worked two jobs in order to support his growing family. As he began to be promoted, this was no longer necessary. In 1974, he moved to Jacksonville to oversee the construction and start up of the Bacardi Jacksonville bottling plant. He returned to Puerto Rico in 1977 and was promoted to vice president. He was part of the executive team that grew the company from its remote outpost position in the pre-Castro era to the largest and most modern Bacardi facility worldwide. He is one of a handful of people to be trusted with the Bacardi rum formula.

Through his leadership qualities, professional successes, and warm interpersonal abilities, Bolívar has motivated a large contingent of his family to study at Georgia Tech. The following relatives have attended or are attending Georgia Tech:

<table>
<thead>
<tr>
<th>Name</th>
<th>Relationship</th>
<th>Degree</th>
<th>Year graduated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jose L. Bolivar</td>
<td>son</td>
<td>BIE</td>
<td>1975</td>
</tr>
<tr>
<td>Janet M. Bolivar</td>
<td>daughter</td>
<td>BIE</td>
<td>1983</td>
</tr>
<tr>
<td>Roberto A. Oliver</td>
<td>cousin</td>
<td>BIE</td>
<td>1975</td>
</tr>
<tr>
<td>Manuel J. Oliver</td>
<td>cousin</td>
<td>BCHE</td>
<td>1976</td>
</tr>
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<td></td>
<td></td>
<td>MSCHE</td>
<td>1977</td>
</tr>
<tr>
<td>Jorge Oliver</td>
<td>cousin</td>
<td></td>
<td>2004</td>
</tr>
<tr>
<td>Eduardo Oliver</td>
<td>cousin</td>
<td></td>
<td>2005</td>
</tr>
<tr>
<td>Javier Bolivar</td>
<td>grandson</td>
<td>(applying)</td>
<td>2006</td>
</tr>
</tbody>
</table>

The Puerto Rico Manufacturer's Association recognized Bolívar in 1991 as "Regional Manager of the Year" and "Island-Wide Manager of the Year." He was president of the Rotary Club for four years, vice governor from 1998 to 1999, and has been an active member for more than twenty-five years. Bolívar has
been a board member of the Institute of the Mentally Retarded for more than fifteen years. "Pepin," as his friends call him, also has been involved in several community and civic endeavors. He enjoys sports and never misses a Georgia Tech game on TV.

Keck Laboratory Debuts Warehouse Operations Tool

Professor Leon McGinnis and researchers at Georgia Tech’s Keck Virtual Factory Laboratory presented revolutionary technology at this year’s North American Material Handling Show in Detroit. Their tool, known as iDEAs, is an online benchmarking tool for the performance assessment and benchmarking of warehouse operations.

McGinnis describes the tool as an innovative approach to answering a fundamental question: “How well is my warehouse performing, and what can I do to improve it?”

“We are exploiting Internet technology to allow warehouse managers to submit their data and receive analysis almost instantly,” he said. “Today, we can provide a ‘relative performance assessment’ by comparing a given warehouse to the ‘best possible’ warehouse constructed from a database of more than 150 actual warehouses. iDEAs computes a “system efficiency score,” giving an absolute comparison to the best practice, and a “percentile ranking” that shows how you compare to all the other warehouses in the database.

What is it?
iDEAs is a system-based assessment of warehouse operations that goes beyond conventional single-factor productivity metrics (picks/hr, cube/line). For a client warehouse, iDEAs evaluates the set of resources used and the operational results achieved by comparing them to a hypothetical “best practices” warehouse constructed from a database of more than 150 actual warehouses. iDEAs computes a “system efficiency score,” giving an absolute comparison to the best practice, and a “percentile ranking” that shows how you compare to all the other warehouses in the database.

How does it work?
iDEAs uses a method called data envelopment analysis to compute an optimized “benchmark” warehouse. At the core of the method is a warehouse input-output model. The current version of iDEAs is based on a study by Frazelle and Jackman and uses the resources and operational results developed for their study. Their study captured data for more than fifty warehouses. Since coming online more than a year ago, more than 100 warehouses have been added.

What does it tell me?
iDEAs calculates two system efficiency scores. The input efficiency score indicates how much resource the best practices warehouse would have used to achieve your level of output. For example, a score of 80 percent indicates the best practice warehouse would need only 80 percent of the resources you used to produce your output. A similar output efficiency score indicates what level of results the best practices warehouse could have achieved with your level of inputs. For example, a score of 125 percent indicates the best practice warehouse could have achieved 125 percent of your output. In addition to the raw efficiency scores, iDEAs provides a percentile score (much like the ACT or SAT) that shows how you compare to all other warehouses in the database.

What data do I need?

RESOURCES:
- Inventory of warehouse equipment
- Headcount
- Floor Space
- Number of broken case pick slots
- Number of pallet rock slots
- Square foot floor stacking

RESULTS:
- Total orders shipped (per year)
- Broken case lines shipped
- Full case lines shipped
- Pallet lines shipped

In addition, you will be asked to provide some information about your company and your warehouse. Company information is needed so we can contact you to clarify data, or verify that it represents an actual warehouse. Warehouse information is required in order to do the analysis necessary to identify “markets” of excellent performance.

What do I need to do?
Point your browser at the online version of the tool at: www.isye.gatech.edu/ideas. There is no cost to use the benchmarking tool.

What else can it do?
The self-assessment tool can be customized to allow internal benchmarking for focused industry segments. continued on page 10
Keck Laboratory Debuts Warehouse Operations Tool  
continued from page 9

For users with multiple sites, application specific input and output measures can be defined to reflect the specific business and requirements of the user or group of users. A customized version of the tool would be relatively easy to implement but is most effective for a group of several dozen locations.

Other possible uses for a different version of the tool include budgeting, planning, and internal benchmarking over time for a single location. This would require a significant development effort.

Professor McGinnis’ team is happy to discuss potential applications and new version development with those interested. For more information, contact Professor McGinnis at 404.894.2312 or leon.mcginnis@isye.gatech.edu.

Tech Professor Turned Astronaut Makes Perfect Landing  
continued from page 7

How long does it take to get to space?  
It only takes about eight-and-a-half minutes.

What happened if you spilled your milk?  
If you spilled a drink, the liquid formed into a ball, “sort of like a blob,” and floated inside the shuttle until it hit something and then splashed apart. The astronauts kept a towel on hand to wipe up spills immediately. “That did happen to me—more than once,” he told the children.

What kind of food do you eat in space?  
Mostly dehydrated meals that were sealed in bags. You had to use scissors to cut them open, mix the contents with hot water, and eat them with a spoon. “My favorites ended up being the lasagna and the ravioli,” he said.

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A question-and-answer session allowed the kids to unleash their curiosity.

Were the stars blue?  
Not blue, but beautiful. In space, the stars looked like perfect points of light. “The star show you see is incredible,” Massimino said.

Massimino concluded his visit by presenting Dr. William Rouse, the H. Milton and Carolyn J. Stewart Chair of ISyE, with a Georgia Tech pennant that flew on the shuttle mission. He had taken the pennant into space as a gesture to the ISyE School.

Massimino also gave Dr. Rouse a collage with photos of the astronauts, the liftoff, and a small U.S. flag that flew into space with him.
Editor's note: The following article originally appeared in the Frankfurter Allgemeine Zeitung, Frankfurt, Germany, on Saturday, September 29, 2001. Oliver Grimm, a student at the University of Dortmund, translated it into English.

Industrial Engineers for Science and Business Studying in America: The Georgia Institute of Technology

When the high divers at the Olympic games in Atlanta looked straight ahead, before they took a final breath and jumped into the water, they could see a building that doesn’t offer any special architectural attractions, only special academic challenges. Facing the swimming pool on the Georgia Tech campus, which was used for the 1996 Olympic Summer Games, is the School of Industrial and Systems Engineering. It is one of the oldest, greatest, and most famous faculties for industrial engineering.

The school has been offering master’s programs at the interface of economy and engineering since the 1940s; a Ph.D. program was added in 1958. Today, students can choose between seven master’s degrees. These offer different points of view on how production, distribution of goods, and value-added services can be improved and how complex systems of different kinds can be controlled for maximum profit with minimal use of resources.

Additionally, there are seven Ph.D. programs that focus on scientific matters in the wide field of industrial engineering. Along with the classic emphasis on logistics and material control, product management, and enterprise planning, there is a master’s program tailored to health systems. For example, the faculty lab for health systems helps researchers find ways to avoid expensive stays in hospitals by examining special training for doctors and nurses and the use of advanced technologies.

Although Tech’s IE faculty is by far the largest in the United States, with more than 1,400 students, the IE graduate program is not too large. There are 180 future industrial engineers heading for a master’s degree and 140 students who want to leave the university with a Ph.D. Contrary to that of alumni from most other American universities, the future of the ISyE doctoral student is not exclusively in an academic career. About half of past graduates have found jobs in business, in areas such as computers, transportation, and aerospace.

The students, who keep busy with applied mathematics, optimization models, and economic analysis, come from all countries of the world, particularly from India and China. The American universities cannot complain about too little interest in general; however, ISyE holds a special position because there are nearly as many international students as Americans.

There are multiple reasons for the strong international interest. One of the most important is the excellent reputation of the faculty. For the twelfth time, the School of Industrial and Systems Engineering was named as the best graduate IE program in America by U.S. News & World Report magazine. Among the nearly sixty faculty members are notable professors like George L. Nemhauser and Ellis L. Johnson. Both of whom are members of the well-known National Academy of Engineering. John J. Jarvis, the [now former] academic administrator of the School, is a successful consultant on computer models for industry and government.

In addition to the reputation of the professors, there are excellent resources, especially computers, which are accessible for the students around the clock, so they can find solutions for technical and logistical problems, optimize business processes, and evaluate the economic impact resulting from enterprise decisions. In addition, the computer is playing an important role in the classroom. Professor Gunter Sharp created a course on decision theory that takes place only in virtual reality. However, the enthusiasm of the students is limited, says Sharp. Except for those who are enrolled in distance learning, students prefer lessons in the lecture hall instead of in front of a monitor.

Georgia Tech cannot compete in a beauty contest with other universities. There are no magnificent buildings and parks like, for example, at Stanford. On the other hand, the tuition at this state-run university in Georgia is not as expensive as the private competitor in California. The tuition for the one-year master’s program is about $13,000.

It is completely free for those students who take part in the one-year exchange program, which the University of Dortmund and Georgia Tech have offered for fifteen years. Currently, the German Academic Exchange Service (DAAD) covers the costs of three Dortmund students to study mechanical engineering or logistics. This stipend includes the costs for flight and insurance and a part of the living costs.

Thorsten Schmidt earned his master’s of science in industrial engineering at Georgia Tech and now works at the School of Conveyor and Storage Systems.

Schmidt emphasizes that the master’s degree counts as a full academic continued on page 12
degree in Germany. Theoretically, German students would not have to take the [German] diploma after they have successfully participated in the American master's program. But the business world is different, says Schmidt. Middle size German companies, especially, may still prefer a German diploma.

Most participants in the Georgia Tech-University of Dortmund program do choose to continue their studies in Germany. Some stay in the United States after the year in Atlanta for an internship. The student visa enables the exchange students to work on research projects for American companies for a limited time. Schmidt himself completed an internship with Siemens in Georgia, which was made possible by contacts at Georgia Tech. Schmidt adores Atlanta as the metropolis of the South and believes it offers a lot to students culturally as well as professionally. However, he warns that exchange students should not take the year too easy. Because of the high workload, studying is not always pure pleasure.

Students who seek a master's degree from the School of Industrial and Systems Engineering must have completed the pre-diploma and passed at least two semesters of the main diploma. Students with various academic backgrounds can apply, as long as their academic standing shows that they are capable of taking the master's program. Students who are sent abroad usually study industrial engineering, mechanical engineering, electrical engineering, or mathematics in Germany. The application papers must include a curriculum vita, three letters of recommendation, and a transcript. In addition, German students who would like to study at the School of Industrial and Systems Engineering have to take the TOEFL and GRE test, which is used to test mathematical and analytical abilities. Information about the tests is available at www.toefl.org and www.gre.org.

More information about the industrial engineering program can be obtained from the School of Industrial and Systems Engineering, Georgia Institute of Technology, Georgia, 30322-0205, USA, phone 404.894.4289, fax 404.894.2301, or e-mail: gradstudies@isye.gatech.edu. Further information about the exchange program of University of Dortmund is available from Lehrstuhl für Förder- und Lagerwesen, Universitäts Professor Michael ten Hompel, Emil-Figge-Str. 73, 44221 Dortmund. Inquiries also may be directed to Thorsten Schmidt, phone 0231.755.3442, or e-mail: thsh@flw.mb.uni-dortmund.de.

IE Major Honored as National Co-Op Student of the Year

Brian C. Rugg, who received his BIE degree from Georgia Tech in December 2001, was named National Cooperative Education Student of the Year, an honor bestowed by the Cooperative Education Division of the American Society for Engineering Education (ASEE) and the Cooperative Education and Internship Association (CEIA).

The award is based on academic achievement, accomplishments as a cooperative employee, leadership, character, and community involvement. Brian was honored at the ASEE conference in February. He received a $1,000 cash award, a recognition plaque, and travel expenses to Sarasota, Florida. Brian completed his industrial engineering degree with the cooperative designation, alternating semesters of full-time classes with full-time work experience at ChoicePoint, Inc., a leading information technology company headquartered in Alpharetta, Georgia. In five semesters with the company, Brian worked in business analysis, process reengineering, project management and implementation, and business technology administration.

Rob Phillips, the ChoicePoint project director who served as Brian's mentor, was impressed. "Brian immediately stepped into the role of project leader in a re-engineering initiative aimed at establishing cross-functional customer implementation process teams. He directed the efforts of a group of eighteen individuals, many of whom were seasoned professionals. In every instance, Brian's solid assertive skills, technical comprehension, and interpersonal abilities enabled him to effectively achieve a successful project implementation, exceeding my high expectations. Primarily through Brian's efforts on the Apollo customer setup streamlining initiative, ChoicePoint was able to achieve more than $400,000 in cost savings for the customer support division."

Brian graduated with Highest Honors, earning an overall grade point average of 3.75. He also was a student leader, coordinating Team Buzz community service projects for three years to benefit the Ronald McDonald House and the Outdoor Activity Center. He served as president of Alpha Kappa Psi business fraternity and was a member of the Alpha Phi Mu industrial engineering honor society and the Golden Key honor society. He also is an Eagle Scout, the recipient of HOPE and Governor's
scholarships, and the James G. and Mary Wohlford Scholarship, and a member of the Dean's List and Faculty Honors at Georgia Tech.

Brian is the son of Edwin and Sharon Rugg of Marietta, Georgia. He will join Deloitte Consulting this fall as a business analyst; meanwhile, he is serving as an assistant instructor for North Carolina Outward Bound. He plans to work for several years before pursuing an MBA.

He is also responsible for the company's geographic expansion into targeted Florida markets. He and his wife Elaine, and their four children, live in Alpharetta, Georgia.

Edwin Feldman, BIE 1950, is in private practice as an engineer specializing in facilities consulting and training. He has authored numerous books and articles and is writing a non-fiction trilogy about World War II. He lives in Atlanta.

Olaf Harken, BIE 1963, is vice president of Harken, Inc., a marine hardware company in Pewaukee, Wisconsin. Harken's factories in Wisconsin and Italy produce the largest range of yachting hardware in the world. The company will deliver equipment for seventeen of the twenty-five yachts built for the next America's Cup in New Zealand.

Warren A. Hood Jr., BIE 1974, MSM 1976, has been named chairman of the board of directors for the Mississippi Technology Alliance, formed to attract science and technology-based economic development to the state. Hood also serves on the boards of the Institute for Technology Development, the Area Development Partnership, and AM South Bank. He is a trustee of Millsaps College and a member of the Hattiesburg school board.


Lee Priest, IE 1992, was appointed vice president of telephone industry marketing for eVoice's new senior management team. Priest holds an MBA from Harvard Business School. He was previously director of e-business for Sprint's consumer services group.

Martin Raffauf, BIE 1974, was part of the pit crew for the race-winning car at the 2002 Daytona 24-hour Endurance Race in Daytona, Florida. The car covered 2,549 miles at an average speed of 106 miles per hour. The Doran/Lista team drivers were Max Papis, Didier Theys, Mauro Baldi, and Fredy Lienhard.

Rex Russell, MSOR 1990, now works as a senior operational concept analyst for Boeing Army Business Development in Philadelphia, Pennsylvania, supporting the U.S. Army CH47 and Chinook Helicopter program. He retired from the Army in 2001 after five years on the staff and faculty of the U.S. Military Academy at West Point, New York.

Donald B. Taylor Jr., BIE 1985, was featured in the August/September 2001 issue of IHRIM.link, a publication of the International Association for Human Resource Information Management. Taylor is founder and CEO of AtWork Technologies, Inc.


**Tech Babies**

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Andrea A. Bradley, BIE 1987, and her husband Clay announce the birth of a daughter, Grayson Rose Bradley, on January 24, 2002, in Atlanta. She joins brothers McClain and Christian.


Jeff Greenbaum, BIE 1993, and his wife Sonja announce the birth of their son, Maxwell Harrison, on April 2, 2001. The Greenbaums expect Maxwell to complete his IE degree in 2024. Jeff has been promoted to president of Bins Corporation, an Atlanta-based management services company with restaurant, beverage, and industrial real estate subsidiaries.

El Hamahmy, IE 1995, and her husband Sonny announce the birth of their son, Alexander Nicholas, on August 12, 2001. Hamahmy is a project manager for Majure Data. The family lives in Dunwoody, Georgia.

Jon Paul Heaton, BIE 1987, and his wife, Maria, announce the birth of a son, Robert Conley, on August 6, 2001. Heaton is a product manager for Cisco Systems in Raleigh, North Carolina.


Tim Israel, BIE 1988, MSIE 1989, and Jeanna Garrett Israel, Mgt. 1994, announce the birth of a son, Garrett Lewis, on June 8, 2001. Tim is the general manager of the lean enterprise services group at Georgia Tech’s Economic Development Institute, and Jeanna is director of operations for DSI Technology, an intellectual property protection company. The family lives in Dacula, Georgia.


Deaths

Fred Gordon, BIE 1952, of Blairsville, Georgia. Mr. Gordon volunteered as a tutor at the Adult Education Center after his retirement. He is survived by his wife of fifty years, four children, and six grandchildren.

Thomas R. Williams, banker and volunteer, dies at 73

Thomas R. Williams, IE 1950, former president of First National Bank of Atlanta and chairman of First Wachovia, died of leukemia in March. Williams began his career as an industrial engineer in the textile industry. After earning his master’s in industrial management from MIT, he became a management consultant, eventually going to work for his favorite client, National City Bank of Cleveland. He rose to executive vice president in 1969 before he returned to Atlanta and the First National Bank as president. In 1985, he helped arrange the bank’s merger with Wachovia and became chairman of the board of First Wachovia Corporation. He retired in 1987.

Known as a forward-looking executive, Williams made First Atlanta among the first companies in the country to sponsor a day care center for children of employees. He also integrated the boards of directors of First National Bank and its holding company, First Atlanta Corporation. It was the first major Atlanta bank to have an African-American board member.

More than a talented executive, Williams was one of Atlanta’s civic leaders. At Tech, he served on the IE Advisory Board and was named to the Engineering Hall of Fame. His spirit lives on in the DuPree College’s Thomas R. Williams Chair in Business and Management.
ISyE Student Honors and Awards

**Tony Chan**, BIE 1994, MSM 1998, was named the Georgia Tech Alumni Association's 2001 Outstanding Young Alumnus. Chan is the founder of TEAM Buzz and a founding member of the Georgia Tech Young Alumni Network. During his freshman year at Tech, Chan helped create Best Buddies, a volunteer organization working with the developmentally disabled. Currently, Chan is co-chairman of the Georgia Tech Young Alumni Network, serves on the study abroad scholarship selection committee at Tech and conducts interviews for the President’s Scholars Program. He is an industry member of the Georgia Tech Executive Round Table, a committee member of the CityCares Technology Initiative, and was a presenter at the 2002 CityCares National Leadership Conference. A native of Hong Kong who immigrated to Mableton, Georgia, at age 11, Chan currently works for Hands On Atlanta as a planning and evaluation specialist.

Yellow Jackets Quarterback **George Godsey**, MSIE 2002, was recognized with a Total Person Award, presented to outstanding senior male and female student-athletes who have demonstrated leadership, academic and athletic achievement, and commitment to community service. The award consists of a plaque in the Edge Intercollegiate Athletic Center.

**Christopher R. Kavanaugh**, BIE 2002, received the Alpha Pi Mu Outstanding ISyE Senior Award, presented on the basis of outstanding scholastic achievement and significant contributions to the School or Institute. He received $100 and his name on a plaque in the ISyE building. Kavanaugh also received the Kurt Salmon Associates Scholarship in Industrial and Systems Engineering, which is given to a senior on the basis of academic merit and contribution.

**Brian Lewis**, PhD 2007, has been named to the Graduate Dwight David Eisenhower Transportation Fellowship. Brian ranked No. 7 out of sixty applicants for the proposal. This is important because although twenty students are named to the Fellowship, only the top seven can be guaranteed funding. Brian will receive up to $10,000 in scholarship funds annually; he also will receive $1,500 to attend the 82nd Annual Transportation Research Board meeting in Washington, D.C., in January 2003.

**Tara Morris**, BIE 2003, was a recipient of a George Wingfield Semmes Memorial Scholarship for $10,000, given to undergraduate engineering students who demonstrate academic achievement, outstanding leadership qualities, strong character, and a true love for Georgia Tech.

**Kathryn Popielarczyk**, BIE 2001, was awarded the YMCA World Student Fund Scholarship, which will pay for one year of study at the University of Munich.

**Charles D. Riddle**, BIE 2002, received an award from the Institute of Industrial Engineers, Atlanta Chapter. The $250 award was presented in recognition of his scholarship and contribution to Georgia Tech IIE.

**Dawn Strickland**, PhD 2002, was one of four students honored with a CETL/BP Foundation Graduate Teaching Assistant Excellence Award, given for outstanding service and a positive impact to the instructional mission of the Institute. She received a certificate and $500.

**Alejandro Toriello**, BIE 2002, won the Robert Engineering Award, presented on annual rotation to an outstanding rising senior in civil, electrical, industrial, or mechanical engineering. L.W. “Chip” Robert IV, chair of Robert and Company, presented Toriello with a cash award of $1,000.

**Brian Watts**, BIE 2002, received one of five national scholarships from Alpha Pi Mu, the honor society for industrial engineering. He received $1,000.

**David Zorn**, BIE 2004, was honored with the Don Bratcher Human Relations Award, presented annually to those members of the campus community who engage in exemplary human relations work.

**Alumni Correction**

In the last issue of IE Connections, we told you that Warren Langley, PhD 1973, had been appointed chief executive officer of the Nasdaq LIFFE Joint Venture. We have since learned that Mr. Langley “has left Nasdaq LIFFE Markets following an inability to agree on mutually acceptable contract terms,” according to a press release on the Nasdaq LIFFE website. We apologize for any confusion this may have caused.
Please take a minute to complete this form, and mail or FAX it to the School. Please send to:
Ms. Ruth Gregory
School of Industrial and Systems Engineering
Georgia Institute of Technology
765 Ferst Drive, Atlanta, GA 30332-0205
or FAX to 404.894.2301

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Degree/Year ____________________________________________________________

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