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THE ALUMNI MAGAZINE FOR ISyE AT GEORGIA INSTITUTE OF TECHNOLOGY

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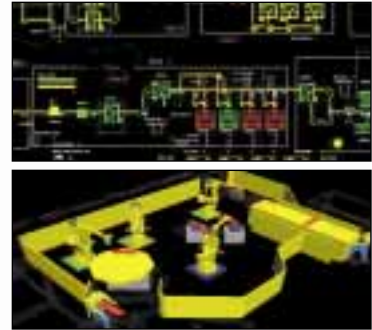
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# Education

by William B. Rouse

Education is the theme of this issue of *Engineering Enterprise*. Education, research, and service are the primary “offerings” of the Georgia Tech enterprise. In this issue, you will see how these three offerings come together to enhance the content and delivery of education at Georgia Tech.

Education in Industrial and Systems Engineering necessarily emphasizes gaining knowledge of manufacturing, logistics, warehousing, finance, and human systems, as well as methodologies such as simulation, optimization, statistics, and stochastics. However, as my high school math teacher taught, “What is clearly perceived is clearly expressed.”


I am continually impressed by how articulate our many successful alumni are. They know how to communicate – tell the story, make the case, close the deal. Communication is an essential skill for engineers and everyone. Judith Norback’s program on workplace communication is no longer leaving these skills to chance. She is researching how best to gain communication skills and, in parallel, implementing what she learns in our senior design courses.

Quite frequently, as I look up from my desk and out the window towards Ferst Drive, I see one or two hand trucks arriving with more paper. We consume an enormous amount of paper. I cannot help but wonder if there are not electronic means to substantially decrease this consumption. Amy Pritchett, when she is not focused on air traffic management, is leading an NSF-sponsored research project to create and evaluate ITWeb, a web-based means for course management accessible by both instructors and students.

I used ITWeb this past semester for my graduate course on decision-making. Not only did I avoid passing out any paper this semester, I also found that ITWeb changes the nature of instruction. The students tend to download the lectures and read them prior to class. During the class, they want to go beyond the lectures and discuss implications and experiences with theories, methods, and tools. In this way, teaching becomes much more collaborative.

Education is also becoming more interactive. Interactive games are enabling students to put their knowledge to work in operating supply chains and managing beer distribution, to name just a couple of games. This enables better understanding of causes and effects, as well as initial skills in using the knowledge gained from the classroom. We can surely expect use of game-based education to increase as students like my 8-year-old son, steeped in GameBoy and the like, make their way to Georgia Tech.

Our education initiatives have many sponsors including the National Science Foundation, Sloan Foundation, Keck Foundation and, of course, the State of Georgia. Alumni have also been great benefactors. In this issue of *Engineering Enterprise* we highlight John Morris. His generosity has enabled the Morris Fellowships which help attract many of the “best and brightest” to Georgia Tech. There are, of course, many other alumni who have also been very generous in their support of education. We are most appreciative of all these benefactors.

In the true spirit of Industrial and Systems Engineering, we are proactively employing the discipline’s concepts, principles, methods, and tools to understand and enhance our own offerings. Education and research in education are prime areas for the types of innovations you would expect from a world-class institution. We intend to live up to these expectations. 

*William B. Rouse is the H. Milton and Carolyn J. Stewart Chair and Professor of the School of Industrial and Systems Engineering at the Georgia Institute of Technology.*



John H. Morris, BIE 1965

## JOHN MORRIS FELLOWSHIPS BRING ISyE THE BEST

If there is any doubt how important private dollars are to a state university, just ask R. Gary Parker, ISyE director of Graduate Studies. They certainly make his job easier. As part of The Campaign for Georgia Tech, alumnus John Morris, BIE 1965, created a fellowship fund for graduate study that “has literally altered the way we can do business in the recruitment of top graduate students,” says Parker.

The John Morris Fellowships vary in amount, duration, and semester offered. But their availability and flexibility are helping ISyE land top graduate students who could attend other institutions. “The use of the John Morris Fellowship funds has been a godsend for us in leveraging our strength in attracting the absolute best Ph.D. students,” says Parker. “And even for the ones we don’t get, I promise you that we make their decision particularly difficult.”

Fellowship money controlled by the School serves as “add ons,” says Parker, funds added in addition to existing assistantships. Assistantships for teaching or research, usually a 1/3 time position, typically equal a tuition waiver and stipend. It is not a lot to live on, especially if the graduate student has a family. “What has really been the distinguishing characteristic with the Morris Fellowships is that John allowed us to ‘relax’ restrictions on its use, in particular, allowing us to award some of

this money to non-U.S. applicants,” continues Parker.

ISyE has the best program in the United States, but “we are competing on a world-class stage, and put brutally, many of the best Ph.D. applicants out there are simply not from the U.S.,” says Parker. “Compounding this is the cold, hard fact that our competitors at Cornell, Stanford, and MIT, by virtue of their private standing, simply do not have to worry about citizenship matters in the way we, as a public institution, do. Virtually all of the fellowship money that is offered by Tech and/or by the government (the National Science Foundation, the Department of Defense) requires citizenship.” Also at issue for some prospective students is the lure of a name like MIT, Stanford, or Berkeley.

Daniel Espinoza is one of ISyE’s top doctoral candidates, recruited by MIT, Carnegie Mellon, and Cornell. A native of Chile, the John Morris Fellowship clinched his decision to attend Georgia Tech. For starters, it allowed him to bring his wife with him. “I think that without this support, we couldn’t be here, because the stipend that you get is not enough for two people. We are going to be three soon, and my wife can’t work due to visa restrictions,” he says. Espinoza’s undergraduate work, in mathematical engineering at the Universidad de Chile, was already a six-year commitment, with thesis.

Jerry O’Neal is another Morris Fellow—a West Point mathematics and foreign languages graduate with more than seven years experience in the Army. “I considered other schools, but none of them offered the package Tech did, and none of them had the strength of the program,” he says. “The package they put together for us made all the difference. To be honest, for us the tougher decision was whether I would be able to do graduate school at all.” O’Neal and his wife have two small children, and it is important to the couple that she stay at home.

John Morris keeps in touch with the fellowship program through Parker. “I owe a great deal of my success to Georgia Tech and ISyE,”

he says. “I am very proud and thankful to be able to help ISyE to stay number one by helping to attract top graduate students. I am very impressed by the quality and breadth of the students and know they will be successful.”

Morris and his wife Cherie live in Laguna Niguel, California. John is retired co-chairman of StoneCreek Capital, a merchant banking firm that sponsors leveraged acquisitions and leveraged buildups in partnership with management teams. He is a former trustee of the Georgia Tech Foundation and an emeritus member of the ISyE Advisory Board. He is a member of the ISyE Hall of Fame and the ISyE Academy of Distinguished Alumni, and he was honored with the College of Engineering Distinguished Alumnus Award in 1996.

## ISyE: ENDOWED CHAIRS CREATE A STAR BURST

*Editor’s note: The following article was originally printed in the President’s Report to the Georgia Tech Foundation.*

It is no secret that the team with the best players wins, and that is true for academic disciplines as well as athletics. The quality of an education and research program depends on the quality of its faculty.

To build and maintain world-class programs, a university must hire bright young faculty, retain outstanding mid-career faculty whom other universities are looking to hire away, and attract “superstar” faculty who are recognized around the world as leaders and innovators in their fields.

Georgia Tech’s School of Industrial and Systems Engineering had been ranked first in the nation for more than a decade, but its most eminent scholars were at the apex of their careers, and other universities also were aspiring to excellence. The Institute realized that if this program was to continue to lead the nation for the next decade or more, it was critical to increase its intellec-

tual depth and plan for a succession of superstars.

The vehicle for achieving these goals was provided by The Campaign for Georgia Tech in the form of several endowed chairs. "Having one endowed chair for a program is nice," said Provost Jean-Lou Chameau, "but when you have several, that makes a big difference."

Recruiting for an endowed chair for the top program in the nation involves making a list of the six or ten top minds in the world in that discipline. Having several endowed chairs to fill in the same timeframe provides an opportunity to attract several of the big names on that list rather than just one. It also allows a university to take advantage of the appeal that face-to-face collaboration has for the best minds in the field.

"You can create a burst of synergy," Chameau explained. "One individual will accept a chair because of the opportunity to work with another outstanding individual from another university who is coming to Georgia Tech in the same timeframe."

That synergy is seen in the recruitment of William Cook from Princeton University to hold the Russ and Sammie Chandler Chair and Jan Lenstra from Eindhoven in The Netherlands to hold the John P. Hunter Chair. Two of the world's most outstanding scholars in complex computational logistics problems, Cook and Lenstra were attracted by the opportunity to work together at Georgia Tech and coordinate the resources their chairs provide.

It was also a factor in attracting Bill Rouse to the Stewart School Chair and Chelsea "Chip" White to the Transportation and Logistics Chair. "We knew each other for 25 years and worked on related issues," said Rouse. "It was icing on the cake to finally be at the same institution."

The strategic use of endowed chairs by a school or department also can increase national prominence in a relatively short time. ISyE's new superstars will strengthen the School's already stellar reputation, propelling areas like engineering statistics to the forefront and helping to define new areas of

expertise, such as a specialization in environmental and biological issues.

The synergy produced by several eminent scholars arriving at the same time also had a direct positive impact on recruiting for more than a half dozen other faculty positions. "People in the School are pinching themselves to make sure it's real, when they look at who is joining the school this year," Rouse said.

A new undergraduate initiative will create opportunities for students to interact with the outstanding new faculty who are joining the school.



L-R: John J. Bartholdi, William B. Rouse, William J. Cook, Leon F. McGinnis, Jan Karel Lenstra, Chelsea "Chip" White

The School of Industrial and Systems Engineering also used endowed chairs to recognize the accomplishments of several outstanding mid-career faculty who might have otherwise been lured away by other

*(continued on page 12)*

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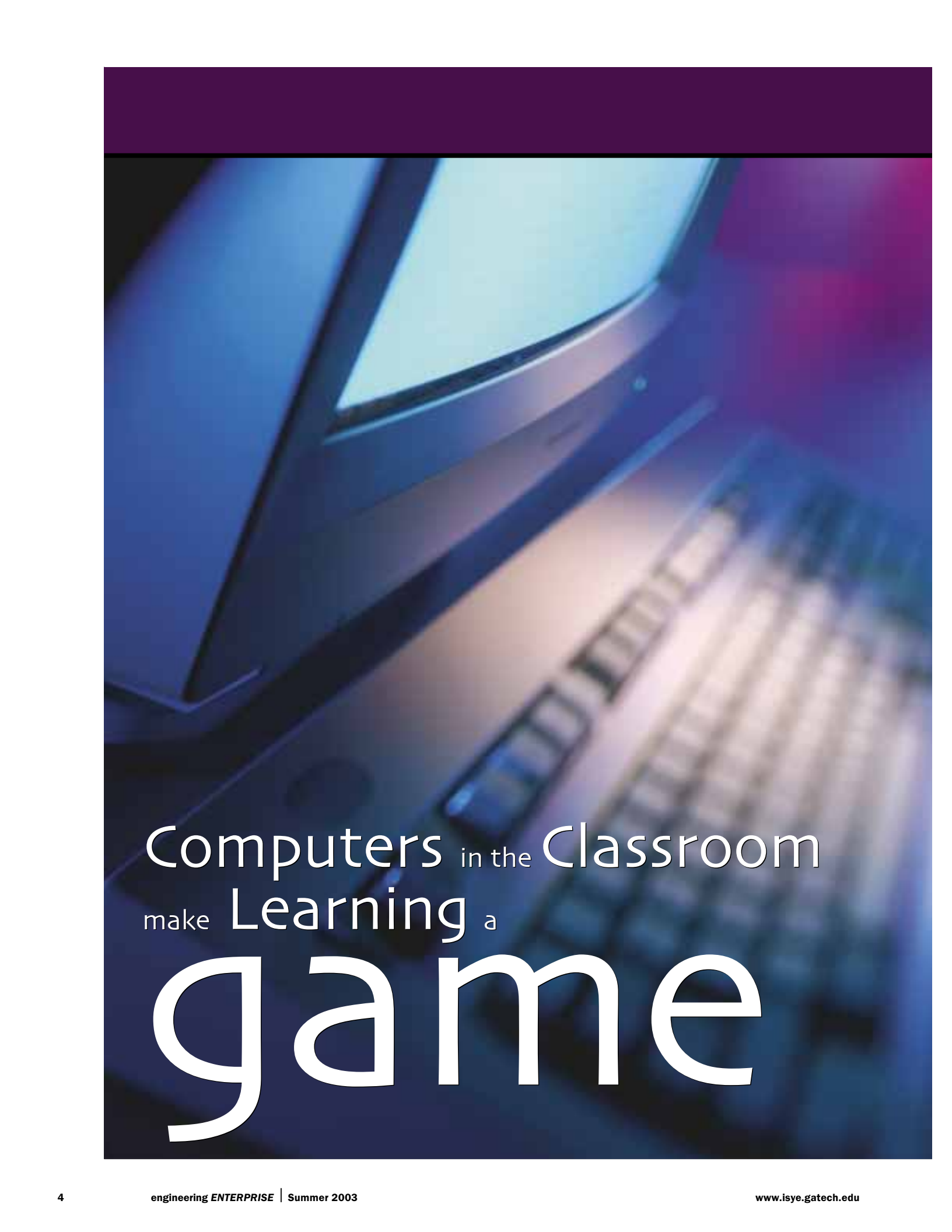
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Computers in the Classroom  
make Learning a  
game



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oday's generation of college students grew up with computer games, so it should come as no surprise that university professors have turned to the genre to illuminate classroom concepts. But to ISyE faculty, computer games are more than just a fun way to learn. These games have an ability to illustrate models that is far superior to conventional classroom techniques.

“When you're a teacher in a classroom, and you're supposed to cover a topic, it is easy to get very specific and not worry about the linkages to everything else the students are going to have to learn,” says Paul Griffin, Associate Chair for Undergraduate Studies. “Playing these games really helps tie together what they learn in other courses, along with things they haven't learned—to see that everything you do really impacts the other things.”

Griffin is interested in getting more gaming into the curriculum, and ISyE faculty are taking him up on that challenge. Below, we look at two of the games already integrated into the ISyE curriculum, and two that faculty are polishing in hopes they will be included soon.

### The Beer Game

Originally a management tool, the Beer Game was developed at MIT in the 1960s to introduce people to the concepts of system dynamics. Since then, it has been played all over the world by a wide range of participants at all levels. But it is really a supply chain game, says Griffin. “Students play a particular component in the supply chain, so there will be a group in the bottling plant, another group that is the distribution center, the retail outlet, the manufacturing plant and so on.” The instructor then issues demand, which is unknown to the supply chain. “It is very simple in that each group gets demand from their downstream customer, and then satisfies that demand over 30 periods.”

“The further you are away from the customer, the more variability you get in terms of inventory,” says Griffin. “Then you can start talking about how to share information and coordinate activities.” Students are currently using the Beer Game in ISyE 3103, Introduction to Supply Chain Modeling: Logistics.

Readers can try the game for themselves at the MIT Forum for Supply Chain Innovation: <http://beergame.mit.edu/>

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## The logistics environment is ripe for games that help students truly grasp the complexity of the logistics system

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### Littlefield Technologies

Littlefield Technologies was one of the first academic computer games, developed by Professors Samuel C. Wood and Sunil Kumar at Stanford University. It is a virtual factory that students must manage 24 hours a day on the Internet. Originally designed for MBA courses, the tool has proven to be equally successful with engineering schools, says Professor Jim Dai, one of the professors using the game in ISyE 3232, Stochastic Manufacturing and Service Systems.

“What is interesting about this game is that it plays on the Internet, with no special software, and no IT support—which makes it attractive,” says Dai. The game runs on the server that is maintained by a commercial company that is based in Berkeley, and students purchase an access code at the beginning of the semester.

Teams of four students play in real time—one or two weeks—with one week representing a year. “The manufacturing system involves a lot of decisions, including when and how much to source raw materials, how many machines to purchase,

and the lead time quotation. If they ship late, the product gets discounted, and if it is late for two days, they don’t earn any revenue,” says Dai. “Once the game starts, the system will evolve, even if the students decide to do nothing. The goal at the end of the game is to have the highest cash value.” While playing, teams know the cash values of the other teams, but not the other teams’ management decisions. As teams have the option to dynamically make decisions, analyzing opponents rankings early on doesn’t mean anything.

“The game simulates a very realistic manufacturing system,” says Dai. “After playing this game, students have a perception of a concrete manufacturing system. In the classroom, I just have to mention it; I don’t have to explain it from scratch and take up a lot of class time.”

The use of Littlefield Technologies is just one method ISyE has adopted to enhance ISyE 3232, formerly *Probabilistic Operations Research*, named least useful course in the early 1990s in an ISyE alumni survey. Dai also asks students to read *The Goal: A Process of Ongoing Improvement*, by E.M. Goldratt and J. C. Cox. Though novels are an unusual resource for engineering courses, *The Goal* is widely heralded for its interesting and attention-holding way of presenting management and accounting theories such as the Theory of Constraints. Dai describes it as “almost a love story. It explains terms, like bottlenecks and variability, that we’re going to cover in class.”

### The Inventory Routing Game

Professor Martin Savelsbergh and his graduate students are in game designing mode. Their first is called, for lack of a better name, the Inventory Routing Game.

The logistics environment is ripe for games that help students truly grasp the complexity of the logistics system, says Savelsbergh. “It lets them experience what it means to be in such an environment,” he says. “Secondly, they should be controlling this system. They should make decisions about sending out the truck to pick up or deliver. They have to realize that once they have made a decision, there is no turning back. They may find out they waited too long.”

Savelsbergh’s game, designed for a master’s level logistics course, is controlled either by an individual or group of students. They control the environment for a simulated week, and at the end, teams compare incurred costs. The competitive factor gives the game another edge over textbooks and class lecture.

“The benefit for the students is that they really experience the system and immediately see the effect that their control decisions have. They learn much more quickly this way, gaming is fun, and they are competing against each other,” says Savelsbergh. He adds that the method is particularly useful in real-time transportation, logistics, and inventory.

"We haven't done a serious analysis of the effectiveness of the game," Savelsbergh continues, "but we will in the near future. Games aren't suited for everything you want to teach, but especially for these real-time dynamic situations, it is the best way to go. People need to understand the complexity of the systems."

Savelsbergh hopes to market the Inventory Routing Game. "There aren't that many games out there at this level. The representation is fairly close to reality. The Beer Game is extremely simple compared to what we try to do," he says. "Developing such games at the level we want them is very time consuming. If you invest the time to do that, you should do more than just teach your students."

He adds that he and his campus colleagues are considering starting a center at Georgia Tech to develop such games. "Teaching in the future won't be what it used to be. It will have less lecturing and will be more tool-based. We're brainstorming the best way to move forward in a structured way."

#### The Supply Chain Game

Professor Leon McGinnis, Associate Professor Christos Alexopoulos and Assistant Professor Stylianos Kavadias of the DuPree School of Management are working to break new ground with their Supply Chain Game, which McGinnis believes is the first of its kind. "We play on a network," he says. "That ratchets up the level of the game, because you have to manage all the levels of interaction of the players, just like in real life."


"Simple business simulations, like the beer game, have proven remarkably effective instructional tools for explaining supply chain, but are typically narrowly focused," says Alexopoulos. "Participants in the beer game, for example, are only concerned with inventory of a single product and can only control it via the size of their orders to their supplier. Further, in typical business simulations, teams of players running identical organizations compete head-to-head in a computer-generated market. This represents an idealized competitive situation more typical of team sports than of globally competitive business and is antithetical to the concept of supply chains."

The Supply Chain Game, focused on the automotive industry, is a multilevel scenario. "Students play the role of a decision maker in a supply chain," says McGinnis. The roles range from suppliers to second tier producers and auto assemblers; the game models the various markets. "The students must decide how much capacity to provide and at what price. If they are a supplier, they must negotiate contracts. If they are a final assembler, they decide how many to produce. And they have a deadline when the decisions must be entered."

Participants enter decisions on a quarterly basis. "The decisions are put together in the competitive framework," says

McGinnis. "Then they see how many they sell. They won't necessarily sell as many as they've planned, because they might run into quality problems," he adds.

"The game aims to reflect the decisions made by each of the involved parties and the influence of these decisions along a supply chain," says Alexopoulos. "In particular their effects on upstream and downstream operations."

The team has been working on the game for the past year, with funding from General Motors and the Georgia Tech Modeling and Simulation Research and Education Center and assistance from doctoral candidates Ralph Mueller, Melda Ormeci, and Wuthichai Wongthachanekorn. This summer it will face its first test, with 12 students fine tuning the moves. "The nice thing about it is that all the players essentially interact through a browser," says McGinnis. "We can have teams from all over the world." If things go well, it will be introduced into ISyE transportation and logistics classes at both the undergraduate and graduate levels. They hope it will eventually be added to continuing education courses, offered on-line similarly to the Littlefield Technologies game. 

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A woman is shown in profile, looking towards the right. She is wearing a dark jacket. The background is dark and textured, possibly a wall or a large screen. In the foreground, a computer keyboard is illuminated with a bright yellow-green light, creating a strong contrast with the dark surroundings. The overall mood is mysterious and focused.

It's not *pretty*, but it's

# POWERFUL

# ISyE Developing New Method of Integrated Learning

**L**earning isn't what it used to be. Thanks to the exploration of web-based technologies, ISyE students in some courses can now learn more from their instructors through the Internet. These students are using ITWeb, a web-based educational technology developed as part of a three-year grant from the National Science Foundation.

An evolving database of course concepts and instructional material, ITWeb seeks to make student access to knowledge easy and efficient through an integrated curriculum. Officially called the Integrated Curriculum Delivery System, the project is led by Associate Professor Amy Pritchett and Director of Information Technology Mark Iken, with support from graduate students Alex Quinn, Lee Nickles, and Mahima Ashok.

Pritchett compares ITWeb to "an academic library that is more focused, organized, and aware of the relations" among its holdings. Quinn more succinctly describes it as "a step toward an Amazon.com model of education."

Many educators believe that the traditional organization of a curriculum into standardized courses limits the extent that students can perceive and understand the relationship between concepts, and makes it difficult for students to explore concepts in an interdisciplinary manner. Pritchett and her colleagues contend that an integrated curriculum, which highlights the relationships between concepts, is better suited to conceptual reinforcement and knowledge exploration.

The goal of ITWeb is to enhance the quality of learning by providing tools that foster holistic comprehension. These tools, which remain under development, include a topic network that enables the viewing of an educational curriculum as a map or cartography of concepts and themes rather than as a series of disconnected courses. An integrated curriculum better reveals the interconnectivity of topics, focusing on the needs of students and instructors with personalized learning and teaching experiences.


ITWeb's search techniques will allow learners to delve deeper into topics of interest, a practice that is key in diminishing the fragmentation of knowledge. ITWeb provides information to professionals, teachers, alumni, and current students, adapting and presenting information to suit individual needs and promoting balanced understanding in the place of fragmented and partial knowledge.

At this point in its development, the organizers see the project as a supplement to courses. As of spring semester 2003, there were ten active courses, and 1,500 students are registered within the system. "We have a bootstrapping problem," says Pritchett. "The faculty need to put more information into the system for it to be a complete database, and yet without a complete database to search through, the benefits of an integrated curriculum aren't visible to faculty and students."

ITWeb is very flexible, both for students and faculty. Faculty create and support courses—adding content and determining which additional content relates to it. They can add lecture notes, post examples of student work for review, and e-mail students directly from the program. Students can use the course webpages to guide initial interaction with the system, viewing materials, completing assignments, and receiving grades.

They will also have the opportunity to explore relevant topics from other courses through related topic links, concept maps, and keyword searches. As students complete additional courses, the system tracks their progress, allowing the system to tailor the presentation of information to the students based on their knowledge and past experiences. Work can stay in the program forever, meaning alumni can recheck notes years after taking a course.

The researchers are examining methods for marketing the ITWeb for other purposes, such as continuing education or distance learning efforts.

So, the question is, with so much information readily available, do students actually need to attend class? Pritchett is up to the challenge; she knows there is plenty she can do to stimulate learning. "It forces me to think creatively about my lectures," she says, "and to be humble about what students really need my lectures for when they can use ITWeb." 

## ITWeb supports:

- ▶ Curriculum Integration
- ▶ Course management tools
- ▶ Online tutorials and demos
- ▶ Discussion boards and chat capabilities
- ▶ Exploratory learning and guided instruction
- ▶ Knowledge refreshing for workplace professionals
- ▶ Knowledge sharing between faculty, students, and alumni

# The New IE

## Today's Students Work to Master Communications Skills

Three recent IE graduates returned to campus this spring to visit the Senior Design class. They were ready to be grilled about their jobs. But Scott Sherris, BIE 1999; Ryan Ogden, BIE 1995; and Erin Chandler, BIE 1999, did not come to talk about industrial engineering. They came to discuss communication skills. The graduating seniors, soon to face their own first day on the job, listened eagerly as the trio discussed the lessons, mistakes, and successes they learned the hard way—on the job.

Today's industrial engineers are required to be savvy communicators. The fast-paced world of technology makes it more efficient to complete many tasks, but it also brings young graduates under closer scrutiny from their bosses, peers, and clients. A practicing engineer needs to be more familiar with e-mail and PowerPoint programs than with slide rules.

ISyE is responding to this new environment with an integrated communications program, designed to help undergraduates incorporate strong presentation and communications skills directly into their assignments. This workplace communications initiative is woven into the projects of the Senior Design course, promoting and polishing the reports students must deliver to the class and their clients.

It is all part of a greater effort led by Dr. Judith Norback, director of Workplace and Academic Communication, with the help of Dr. Joel Sokol, Dr. Faiz Al-Khayyal, and Dr. Paul Griffin. Dr. Norback joined ISyE with a mission to prepare students for the written, oral, and interpersonal communication skills they need to advance in the information age. With funding from two prominent alumni, Mel Hall, BIE 1967, and Hayne McCondichie, BIE 1952, MSIE 1953, Norback is

conducting research and designing curriculum that will eventually touch ISyE students during all four years of their undergraduate education. In addition, Norback and Peter McGuire of Tech's School of Language, Communication, and Culture were recently funded by the National Science Foundation to bring workplace communication into technical communication, another course required for ISyE students.

For now, the Senior Design students are the primary beneficiaries, and they are very happy about it. Most wish they had even more experience with the techniques; others lament the lack of a public speaking course within the program.

Maxine Gardner will graduate in December 2003, just days after she receives her commission in the U.S. Navy. At that point she will either report to a ship or begin flight school. Either way, there is little room for miscommunication. "My goal is to go into management, and I will have people below me," says Gardner. "Communication is very important when you are working with others. You have to be able to convey your ideas, and you have to get the facts to them. It's very important to know what they are thinking so there are not any misperceptions."

Norback's communication program is more than good grammar and public speaking skills. After all, this is Georgia Tech. Today's IEs need a wide range of skills, and Norback is taking the scientific approach toward her subject. Language and presentation are essential, as are videotaping and critiquing student presentations. Norback is going farther, visiting the workplace, interviewing employers, and building a database of information that will be available to all students and alumni.



Inside her web-based collection are sample reports, memos, business plans, letters, updates, and a host of other documents that may confront a young IE.

“Integrating workplace data into the instruction results in higher content validity,” says Norback. “We teach students what we claim to teach them: workplace communication skills. Many students are required to transfer their learning from the classroom to the workplace. The communication instruction does not require transfer, because it reflects the setting in which the students will apply their enhanced skills.”

“The thing that sets us [ISyE] apart is that we don’t assume that we know what is needed in the workplace,” she continues. “We ask the experts, those IE grads who are working: ‘What are the most important things you write and create on your job?’ Then we ask them about the purpose, the audience, the exact steps they are taking to create the different materials.” One of her interview subjects explained that he found out who was going to be at each meeting and interviewed them as to their expectations. By researching and preparing information, and placing it within the notes section of a PowerPoint presentation, he can anticipate and answer most questions.


Learning to read and interpret physical expressions is another challenge for successful communicators: using eye contact, avoiding distracting gestures, transitioning topics smoothly, responding to evidence of dissatisfaction. “There are times when an IE has to work with people on the line and explain change,” says Norback, “So they have to read where there is dissatisfaction—a frown, or a questionable look—and meet that head on.” Day-

dreaming is another side effect of poor communication, says Norback. “We’ve taught students how to bring audience members back and grab their attention so that they stay with you.”

Students are particularly interested when recent graduates relate their experiences in the workplace. Scott Sherris co-oped with UPS before being hired full time. “Part of my job is to bring our company kicking and screaming into a new era of communications,” he says. “Now, we get too much information, and we get it immediately. We don’t have a long time to deal with it before new information comes in. We are able to make changes that we never could before, so it makes the job of an IE bigger—it is more time-based and a little less analytical, I think.”

Ryan Ogden enjoyed his stint as a panel member, although returning to campus in a suit was slightly rattling. He plans to work further with Dr. Norback on the communication program. “I remember my first month or so on the job, figuring things out on my own,” he says. “There was no basis as to what to expect from professionalism, conducting meetings—and communication is a major part of that.”

Hayne McCondichie, a former newspaper editor and one of the alumni who invested in the project, is pleased at the progress being made on workplace communication within ISyE. “There is nothing more valuable in the world than good communication skills,” he said. “If I had to criticize my Georgia Tech education, that’s what was missing.”

Not anymore. 

*(continued from page 3)*

universities, including John Bartholdi, who holds the Manhattan Associates Chair of Supply Chain Management, and Leon McGinnis, who is the Eugene C. Gwaltney Professor of Manufacturing Systems.

Although Chameau developed the strategy to use endowed chairs to elevate the already top-ranked ISyE to an even higher level, he credits recently retired School Chair John Jarvis and new Chair Bill Rouse with making the plan a reality.

## EMIL 2003 CONCLUDES WITH CAPSTONE EVENT

On June 5, 2003, ISyE's Executive Master's in International Logistics (EMIL) program and Cap Gemini Ernst & Young (CGEY) teamed up to host The EMIL Capstone Event and Business Case Competition. EMIL is a master's degree program that helps the world's leading companies develop creative, global logistics solutions by grooming their supply chain executives. The Capstone Event, the culmination of the 18-month degree program, brought together EMIL participants, advisory board members, and faculty members to showcase the participants' international supply chain and business management knowledge while giving advisory board members a better understanding of what goes on in the EMIL "classroom."

To kick off the program and build a common foundation of understanding, participants and advisory board members attended a "trade show" of sorts: faculty members presented highlights from the five program residences in six different, interactive learning modules. "Those attending could go to any booth to get a refresher on industry trends and leading practices for topics taught during the residences," says Dr. John Vande Vate, EMIL executive director. "The modules helped create a common starting point and language for the remainder of the Capstone Event,



L-R: John Kehoe, Baxter Healthcare; Jim McCabe, Milliken & Company; Cheryl Martin, U.S. Postal Service; Jonathan Hartman, Ford Motor Company

in addition to giving the advisory board members a 'hands-on' understanding of how the EMIL program works."

To make the transition from knowledge gathering to idea application, EMIL participants from companies such as Intel, Ford Motor Company, General Motors, and Baxter Healthcare then faced-off in a global supply chain business case competition. Teams of four to five participants were charged with forecasting the future of supply chain management over the next decade. They identified the "leading edge" of supply chain management and described how companies could utilize this knowledge as a competitive advantage. Team members addressed the entire supply chain, including procurement, manufacturing, transportation, warehousing, consumer management, and reverse logistics, all within an international context. Based on these results, EMIL advisory board members serving as competition judges presented the *EMIL Supply Chain Leadership Award* to the winners: Jonathan Hartman, Ford Motor Co.; John Kehoe, Baxter Healthcare; Cheryl Martin, U.S. Postal Service; and Jim McCabe, Milliken & Co.

"During the past 18 months, the EMIL participants have learned best

practices from international thought leaders during their European, Latin American, Asian, and U.S. residences," says Vande Vate. "This competition allowed participants to apply this international supply chain knowledge to the real-world and be critiqued by senior executives from their own companies. It was the ultimate real-world test."

The participants finished the day with a 15-minute presentation of their 18-month Global Supply Chain Project. Rather than pursue a traditional master's thesis, EMIL participants work in teams to complete an 18-month Global Supply Chain Project. Participants and sponsoring companies use this opportunity to utilize Georgia Tech's vast knowledge and resources to focus on their own critical supply chain concerns. Parameters for the project are flexible enough to ensure that it will benefit the company's overall supply chain strategy. Teams work together to remove costs, speed cycle time, or enhance revenue across the supply chain. Projects are designed to extend beyond the participants' current scope of responsibilities, preferably including sourcing, operations, and/or markets on at least two continents. Most projects are designed

to provide significant value to the sponsoring organizations, with a minimum savings of \$1 million.

The event was designed based on Cap Gemini Ernst & Young's Accelerated Solutions Environment, described as "unique environment and facilitation capability used to rapidly visualize and solve complex business challenges." Under normal circumstances, participants gather in a custom-designed space for up to four days of intensive work towards a clearly defined objective. Facilitators work to design and deliver events that leverage a combination of environment, facilitation processes, technology, knowledge, and collaborative work techniques. These events foster creative thinking and alignment that helps clients deliver solutions weeks or months ahead of conventional approaches.

John Kehoe of Baxter Healthcare, a 2003 graduate, felt the Capstone Event

was a fitting conclusion to his experience: "It was a wonderful way of bringing together 18 months of significant learning, tying it together, and then projecting it into the future of what could be," he said.

## ALUMNUS PARK DEVELOPS NEW PROTOCOL

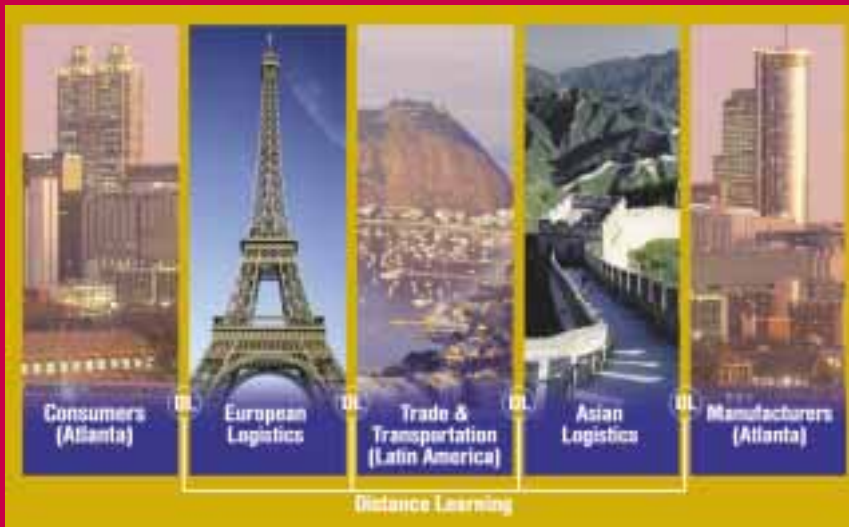
Pennsylvania State University researcher and Professor Jonhgun Park, who received his Ph.D. from ISyE in 2000, is credited with developing a faster method for more efficient sharing of widely distributed Internet resources, including Web services, databases, and high performance computers. Park says the new technology improves the allocation of Internet resources and speeds it up to 10 times faster.

Park, who teaches at Penn State's School of Information Sciences and Technology, proposed his new protocol at the IEEE Symposium on Applications and the Internet in January in a paper, "A Scalable Protocol for Deadlock and Livelock Free Co-Allocation of Resources in Internet Computing."

According to *Science Daily*, Park's proposed algorithm enables better coordination of Internet application in support of large-scale computing. The protocol uses parallel rather than serial methods to process requests. That helps with more efficient resource allocation as well as solves the problems of deadlock and livelock caused by multiple concurrent Internet applications competing for Internet resources.

Park is currently fine-tuning the protocol and a new generation will be presented later this year.

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L-R: Dr. Chip White, Dean DeMillo, Chris Klaus, Doug Lewis

## GEORGIA TECH BUSINESS NETWORK: THE CHANGING NATURE OF THE ENTERPRISE AND SECURITY

Public and private sector enterprises need to form a new mindset in order to battle today's security threats, says Richard A. DeMillo, Imlay Dean and Distinguished Professor of Computing at Georgia Tech. DeMillo addressed those attending the May meeting of the Georgia Tech Business Network, which focused on *Security: Business Threats, Challenges, and New Opportunities*.

DeMillo, who also serves as director of Georgia Tech's Information Security Center, was formerly chief technology officer for Hewlett-Packard, and once directed the Computer and Computation Research Division of the National Science Foundation. His address opened the meeting, providing the groundwork for a panel discussion featuring Christopher Klaus, founder and chief technology officer of Internet Security Systems, and Doug Lewis, chief information officer of Six Continents Hotels. Chelsea C. "Chip" White III, ISyE Chaired Professor in Transportation and Logistics and director of Georgia Tech's Trucking Industry Program, moderated the program.

DeMillo discussed the "death of the enterprise," a trend which is having a profound impact on security. Today's

business entities, similar to our nation's interests, no longer reside in facilities that can be protected by guns and armies, he said. "The notion of what we're trying to defend has grown from a border or theatre of operations to an ambiguous world," said DeMillo. "Attacker and defender [as titles] don't make sense anymore. People move throughout the sphere of influence."

"Homeland security is really an enterprise security problem," he continued. "We're now spending billions of dollars on homeland security. Are we making the investment wisely? Almost certainly not." Today's technology, he argued, while aptly sophisticated, is not human-centric. "It doesn't matter how good the firewall is if you haven't trained the network administrator. It's a mindset problem." Until this changes, the U.S. is doomed to repeat past mistakes of the 1960s.

Klaus and Lewis continued the discussion, detailing the implications of DeMillo's speech and opening the meeting to questions from the audience.

The Georgia Tech Business Network was created by the School of Industrial Engineering for all Georgia Tech alumni to continue the Tech connection, foster lifelong relationships, enable continued learning and knowledge sharing, and ultimately, increase the value of a Georgia Tech degree. The

organization holds quarterly meetings on a variety of topics, in addition to smaller meetings throughout the year. For more information, visit the website at [www.gtbn.org](http://www.gtbn.org).

## STUDENT CHEATS DEATH TWICE TO GRADUATE

As hundreds of proud parents cheered on their graduates at Spring Commencement, few had more pride than the family of William Palmer, BIE 2003. Palmer enrolled at Tech in fall quarter 1994. A fifth-year co-op student in the spring of 1999, he was just finishing up his degree when he was involved in an auto accident that left him with severe brain injuries and in a coma. After he had been in the coma one month, doctors told his parents he had only a five percent chance of surviving. Then, after the fifth week, Palmer woke up.

Recovery wasn't easy; Palmer had to learn to walk again after spending so much time in the coma and had lost much of his short-term memory. But by the fall, he had re-enrolled at Tech and was on his way to finishing his degree.

"It was rough going back to school," he said. "But I was determined to make it."

Just a few short weeks after he returned to Tech, Palmer developed a severe headache. Knowing this could be a sign of something serious, he began driving to Piedmont Hospital.

"I remember driving there and then everything cut out, like nothing," said Palmer. "I hit a pole and a building. I remember walking out of the car and sitting on the curb."

Palmer had suffered a brain hemorrhage and was taken to Grady Hospital. While at Grady, a drainage tube ripped a hole in his stomach, which was discovered only after he was transferred to a hospital in Dayton, Ohio. He developed Methicillin Resistant Staphylococcus aureus (MRSA), a bacterial infection that is resistant to antibiotics.



William Palmer, BIE 2003

His heart rate hovered above 170 beats per minute and he had a fever of 105.9 degrees Fahrenheit. He was an hour away from death when the doctors found and treated the infection.

As a result of his two brain injuries, Palmer's left side is slightly paralyzed and he has to use a motorized wheelchair to get around. His physical therapist doesn't believe he will ever walk again, which means Medicare will not pay for his therapy, but Palmer isn't giving up. He's doing his own brand of physical therapy in the gym. He points out that after both accidents his doctors didn't think he would live. Once he survived, they told him he would never graduate from college. He has proven them wrong three times, and he aims to do it again. He may seem stubborn, but that's all right with him.

"My ex-girlfriend told me 'I know you'll walk again because you're so stubborn.' I said, 'You mean determined.' And she said, 'No, I mean you're stubborn.' But that's okay. Not only am I going to walk again, I'm going to run again," said Palmer.

## ISYE CONTINUES IN LEADERSHIP POSITION

The School of Industrial and Systems Engineering has been named the number one program in industrial and manufacturing engineering in the United States for the thirteenth year in a row, according to *U.S. News & World Report*.

We are pleased, once again, to receive recognition for the School's continual quest for excellence. This honor is a direct reflection of the efforts of our diverse, professional faculty and the academically talented students they teach. Without the dedication and curiosity of these people, there would be no ISyE.

Following ISyE in the top five are (2) University of Michigan, (3) Purdue University, (4) Pennsylvania State University, and (5 – tie) Stanford University and the University of California-Berkeley.



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Georgia Tech's College of Engineering as a whole remained a member of the elite top five, behind only the Massachusetts Institute of Technology, Stanford University, University of California-Berkeley, and the University of Illinois. Seven of the College's 11 engineering programs ranked within the top 10 of their respective disciplines.

## **C.F. JEFF WU IS NEW COCA-COLA CHAIR IN ENGINEERING STATISTICS**

C.F. Jeff Wu joins ISyE in July as the Coca-Cola Chair in Engineering Statistics. Wu comes to Georgia Tech from the University of Michigan, where he served as H.C. Carver Professor of Statistics and Professor of Industrial and Operations Engineering. Prior to this he was the GM/NSERC Chair in Qual-

ity and Productivity at the University of Waterloo.

A world-renowned statistician, Wu received the prestigious COPSS (Committee of Presidents of Statistical Societies) Presidents Award in 1987. This award, commissioned by five statistical societies, is given to the best researcher under the age of 40. He is also an elected member of Academia Sinica and a Fellow of the American Society of Quality, the Institute for Mathematical Statistics, and the American Statistical Association. He has won numerous awards, including the 1990 Wilcoxon Prize for the best practical application paper in *Technometrics*; the Brumbaugh Award for the single most important paper to quality control among publications sponsored by the American Society for Quality Control; and the 1997 Jack Youden Prize for the best review paper in *Technometrics*. He was the 1998 P.C.

Mahalanobis Memorial Lecturer at the Indian Statistical Institutes.

His research work is widely cited, and he is listed as "ISI Highly Cited Researcher" in 2003 on [www.isihighlycited.com](http://www.isihighlycited.com). He is also well cited in professional journals and magazines, including a feature article about his work in *Canadian Business* and a special issue of *Newsweek* on quality. He has served as editor or associate editor for several prestigious journals, such as *Annals of Statistics*, *Journal of American Statistical Association*, *Technometrics*, and *Statistica Sinica*. Wu has published more than 100 research articles in peer review journals. He has supervised 29 doctoral candidates; 14 of these are now working in major research departments in statistics/engineering/business in the U.S. and Canada, and two are senior vice presidents at major U.S. companies. He also co-authored, with

## **The Changing ISyE Curriculum**

Knowledge is by nature dynamic. ISyE faculty regularly struggle to incorporate new ideas in industrial engineering, technology, and education into the School's curriculum. Other factors, such as Georgia Tech's switch to the semester system in 1999, can also be the catalyst for change. Below, Dr. Paul Griffin, associate chair for Undergraduate Studies, discusses recent and potential changes in ISyE undergraduate coursework:

### **ISyE 2030, Modeling in IE**

2030, which Griffin refers to as "an introductory class," was added at the time of semester conversion. According to the Georgia Tech catalog, "Coverage includes projects involving information collection, data acquisition, analysis, and presentation, as well as the motivation and use of analytical algorithmic, conceptual, and computational models." While not an overview of IE, "the whole purpose is to show them these are the kind of problems that they are going to end up solving as an IE," says Griffin. "The focus is on how to start thinking like an IE and start thinking about the kind of topics that you'll see." The two-hour class, with a three-hour lab, requires that students have completed CS 1322 and ISyE 2027, or the math department equivalents.

### **ISyE 3232, Stochastic Manufacturing and Service Systems**

Griffin says 3232 has undergone major changes in the past four years. Expanding from a quarter to a semester is one difference. "They

are still covering the same math," he says, "but they've added in this contextual knowledge of the practical side. It is not just a simple, abstract thing that they are manipulating anymore." Students now practice factory physics by playing the Littlefield Game (see article page 6), a simulated factory environment that gives them hands-on, real time experience with stochastic movements of material in manufacturing facilities and the supply chain.

### **ISyE 4104 and 4105, Senior Design I and II**

ISyE's capstone course has faced some challenges now that it is a two-semester requirement. "For some companies that is too long to commit for a project," says Griffin. "Most projects have a shorter life. It has also taken a lot of resources—you need a faculty contact for two semesters per student." Twelve-person groups are the norm, something Griffin calls "ludicrous." This spring semester, faculty conducted a designed experiment, running a one-semester sample of the course with groups of five. "We're looking at the quantifiable benefit of working with smaller groups," Griffin continued, adding that external reviewers will be comparing student's work. Faculty will review the results and vote on whether to change to a one-semester format this summer.

### **Student Voice Council**

This new student organization, organized spring semester, formed to give students a means of expressing concerns. "There are things

Mike Hamada, the award winning book *Experiments: Planning, Analysis, and Parameter Design Optimization* (Wiley, 2000).

Wu is excited about joining the ISyE faculty. "One of my lifetime goals is to develop an industrial statistics program that will become a new paradigm and role model in the engineering college," he says. "During my first visit to ISyE in February of 2002, I was immediately impressed and convinced that this would be the place for me to carry out this vision. With their resources, reputation, and innovative outlook, Georgia Tech and ISyE provide an ideal environment to develop a world-class program in engineering statistics and quality engineering."

Wu earned his bachelor's in Mathematics from National Taiwan University and his doctorate in Statistics from the University of California-Berkeley.

## NEW GTRI DIRECTOR JOINS ISyE FACULTY

Dr. Stephen Cross will arrive on campus this September to serve as vice president and director of the Georgia Tech Research Institute. He will also join the ISyE faculty as professor. Cross is currently the director and chief executive officer of the Carnegie Mellon Software Engineering Institute (SEI), an applied research laboratory at Carnegie Mellon University (CMU). He also holds a joint appointment as a research professor in the Robotics Institute of the School of Computer Science.

"I have known Steve for more than 20 years, since I served on his Ph.D. committee at the University of Illinois," said Dr. Bill Rouse, ISyE Chair. "His research in AI and decision support systems in the Air Force, the Defense



Stephen E. Cross

Advanced Research Projects Agency, and CMU make Steve an excellent addition to the Human Integrated Systems interest area in ISyE. Steve is very well connected and highly regarded in Washington, and we hope he will be able to help accelerate several ISyE initiatives."

Cross is a member of the U.S. Air Force Scientific Advisory Board and is the past chairman of the DARPA Infor-

that can be very simple fixes that the School just doesn't know about," says Griffin. "There are things that we may see as minor, but can be a huge deal. Like the mice in the computer lab. They were always gunked up and you could never use them. So we switched them out to optical mice."

### Core Curriculum Review

The Student Voice Council tackles larger challenges as well. "The biggest thing that came out is the issue of flexibility within the curriculum," Griffin continues. "Essentially, every IE student takes the same classes. Students have very different interests—some want to go into logistics, while others want to pursue health systems or manufacturing or consulting. And we don't give them the opportunity to learn more about their particular topics." Students have indicated, through a survey, an interest in establishing topical tracks. "Since all of our courses are required, we have to decide that not everything we teach is core material. This is where the battle is, of course." The goal is to get the core curriculum down to five or six classes (from 12). Each course eliminated can be turned into three electives, allowing for a much broader selection of topics. Griffin frankly states that it is time. "Not only will the students like it, but to be honest, our curriculum is outdated. People bring in new materials, but there are whole new topics that we simply don't have the flexibility to offer. If we have flexibility, that would make it easier to evolve and bring in new classes."


### No Ds Allowed

Griffin calls it "a minor thing," but some students probably feel differently. "Now we don't allow Ds in IE—those all have to be made up. To register for Senior Design, all of your IE courses must be C or above," he says.

### Class Size

"We're trying some experiments: going large class with recitation compared to multiple offerings of classes," says Griffin. Simulation will be offered as a large class with breakouts this fall semester. Anyone in college 20 years ago may remember this phenomenon, but for this generation, it is a new idea. The School is also looking for the best delivery mechanism to bring classes with multiple sections down to the smallest size possible.

### Pre-reqs

ISyE requires two computer classes, more than any other Tech program. "More than two-thirds of our students are transfer students," says Griffin, adding that the computer classes must be completed before enrolling in the introductory IE classes. "They have been skipping over and taking courses out of sequence. We changed the pre-req system to make it easier for the transfer students to naturally work into how we want them to progress." 

mation Science and Technology panel. He has published more than 50 papers on technology transition and the applications of advanced information processing technology. He earned his Ph.D. from the University of Illinois, his MSEE from the Air Force Institute of Technology, and his BSEE from the University of Cincinnati. He is also a graduate of the U.S. Air Force Test Pilot School, the Air War College, and the National Defense University. Cross was selected as a Fellow of the Institute of Electrical and Electronic Engineers and a Distinguished Alumnus of the University of Cincinnati's College of Engineering.

GTRI is the applied research arm of Georgia Tech. Some 1,200 employees perform and support approximately \$115 million in annual research for more than 200 clients in industry and government. The GTRI mission is to plan and conduct focused programs of innovative research, education, and economic development that advance the global competitiveness and security of Georgia, the region, and the nation. Dr. Cross succeeds Dr. Edward Reedy, director since 1996, who is retiring from Georgia Tech after a 33-year career.

## FACULTY NEWS

Assistant Professor **Ozlem Ergun** has received the CAREER Award from the National Science Foundation.

Associate Professor **Amy Pritchett** was awarded the prestigious "Excellence Faculty Award" at the 2003 Georgia Tech Women in Engineering banquet.

**Julie Swann** and **Paul Griffin** have received the NSF Engineering the Service Sector Award for "Designing an Optimal Financing Mechanism for Dental Care Among the Elderly." **Swann** also received the NSF Manufacturing Enterprise Systems Award for "Coordinating Pricing and Inventory Control," with David Simchi-Levi of MIT.

Professor **Kwok Tsui** and Professor Emeritus **Harry Wadsworth** were

elected in 2003 as Fellows of the American Statistical Association. The fellow status is the highest grade given to ASA members.

Assistant Professor **Roshan Joseph Vengazhiyil** has received a 2002 Distinguished Dissertation Award from the University of Michigan's Rackham Graduate School. It is the most prestigious award given by the School. He is the first winner of the award from the Department of Statistics, where he received his Ph.D. in 2002.

**Jeff Wu**, Coca-Cola Chair in Engineering Statistics, has been elected a Fellow of the American Society of Quality. This distinction is reserved for ASQ members who have demonstrated active participation and significant contributions to the quality community.

## STUDENT NEWS

**Matt Drake** received honorable mention in the 2003 NSF Graduate Fellowship competition. Drake was also selected to attend the Council of Logistics Management Doctoral Colloquium, and received the Council's Graduate fellowship for 2002-2003.

The following ISyE students were honored at the 2003 Student Awards Ceremony spring semester:

- **Melissa Krenzel** received the Institute of Industrial Engineers Award (\$500)
- **Javier Estrella** received the Alpha Pi Mu Outstanding Senior Award (\$500)
- **Alejandro Toriello** received the Paul T. Eaton Memorial Award in Material Handling (\$150)
- **Alana Long** received the Kurt Salomon Associates Scholarship in ISyE (\$500)
- **Monique Gupta** and **Alanna Millman** received the Henry Ford Scholar Award (\$1000)
- **Eric Orrington** received the Aeso Systems Graduate Minority Engineering Award (\$500)

- **Tara Leigh Morris** received the Helen E. Gregna Outstanding Woman Engineer Award (\$500)
- **Tiffany Massey** received the Joe T. LaBoon Award for outstanding senior cooperative education student (plaque)
- **William Palmer** received the CETL/Dow Foundation Perseverance Award (\$1000)



Monique Gupta

### ISyE Junior Wins Prestigious Goldwater Scholarship

Junior Monique Gupta, 20, doesn't want much out of life, only to get a Ph.D., an M.D., and improve the efficiency of gene transfer techniques and the health care system. Scheduled to receive her bachelor's degree in Industrial and Systems Engineering (ISyE) next year, she has a bit of work to do before she reaches those goals. But winning the prestigious Goldwater scholarship has put her one step closer.

"She's really the best I've seen in several years," said Paul Griffin, Associate Chair for Undergraduate Studies in ISyE.

Gupta came to Georgia Tech from Macon, Georgia, three years ago. At the time, she said, she didn't really know what she wanted to do, only that

she wanted to study engineering. After being at Tech for a while, it all came together when she decided to major in ISyE. "ISyE gives me an engineering background, which helps with research analysis and technical writing," Gupta said.

Healthcare system efficiency is also one of the major areas of concentration in ISyE, said Griffin.

Gupta has been working on gene therapy techniques with Joseph LeDoux, professor in biomedical engineering at Georgia Tech and Emory University.

Gene therapy is a novel approach to treating diseases, and most of it is still in the experimental phase, said Gupta. But the idea is that scientists would first identify a gene in a patient that is causing a certain disease. "A new gene would be created in a lab, and doctors would use it to replace the gene that is causing the problem. One way to deliver the new gene to the patient is by

using a retrovirus to carry the gene into the affected area of the patient," explained Gupta.

"Diseases that can be helped by gene transfer include rheumatic arthritis and juvenile arthritis," she said.

Before winning the Goldwater, Gupta won Tech's four-year President's Scholarship, which is given to incoming freshmen who demonstrate leadership in their community and academic excellence. By paying up to \$7,500 toward next year's tuition, fees and room and board, the scholarship should help her save money for graduate and medical school.

This year the Barry M. Goldwater Scholarship and Excellence in Education Foundation awarded 300 scholarships out of a field of 1,093 applicants from the U.S. and Puerto Rico. The Foundation is a federally endowed agency established in 1986. The Scholarship Program, honoring former Ari-

zona Senator Barry M. Goldwater, was designed to foster and encourage outstanding students to pursue careers in the fields of mathematics, the natural sciences, and engineering.

## ALUMNI NEWS

**John Aderhold, BEE 1945 and MSIE 1967**, has been elected to the Hall of Fame for the J. Mack Robinson College of Business at Georgia State University. Aderhold, chairman of Aderhold Properties, surprised his wife several years ago by donating the funds to name the Helen M. Aderhold Learning Center at GSU, her alma mater.

**Allison Hayes Crossen, BIE 1997, MSHS 1998**, has joined North Georgia EMC in Dalton as Energy Services Coordinator. Crossen coordinates energy services for commercial and

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**Paul Edfeldt, BIE 1952**, has been appointed to the board of directors of M-Power Ministries, Inc., a non-profit corporation with the mission to rebuild urban communities in the Birmingham, Alabama area. Edfeldt, who lives in Birmingham, is retired.

**Andy Fiol, BIE 1993**, and his family (wife Deanna, Zachary, age 6, Made-

line, age 4, and twins Caroline and Emily) moved to Charlotte three years ago, where Fiol is working with a number of new companies in various fields after eight years with Milliken & Company in its international business and eBiz initiatives.

**Morris L. Gavant, MD, BSHS 1976**, has been named Chief of Radiology at North Arundel Hospital in Glen Burnie, Maryland. Gavant is also a

partner with Advanced Radiology, Inc. He resides in Baltimore.

**J. E. "Eddie" Hicks, BIE 1963, MSIM 1968**, is the National Automatic Merchandising Association's "National Industry Person of the Year." Hicks is president and CEO of Prestige Services in Clifton Park, New York.

**Keith Hollingsworth, BIE 1990, MSIE 1992, Ph.D. 1995**, has been granted tenure in the Division of Economics and Business Administration at Morehouse College in Atlanta, where he is an associate professor. Hollingsworth was also the inaugural recipient of the Division's Outstanding Faculty Award, determined by student vote.

**Brig. Gen. Ronald L. Johnson, MSOR 1985**, has been named Black Engineer of the Year (Professional Achievement in Government) by *U.S. Black Engineer* magazine. Gen. Johnson is a West Point graduate and Commanding General and Division Engineer for the Pacific Ocean Division of the U.S. Army Corps of Engineers.

**Steve Johnson, BIE 1983**, recently co-founded, with Sandy Stephens, BIM 1987, a new distribution and logistics consulting firm specializing in planning design and productivity improvement for retailers and wholesale distribution. Johnson Stephens Consulting is based in Atlanta. Johnson previously spent 14 years in consulting with another Atlanta-based firm.

**George "Fred" Milburn, ISyE 1979**, has been promoted to the rank of Colonel in the U.S. Marine Corps. Milburn is the Future Operations officer of I Marine Expeditionary Unit, deployed to the Middle East. He calls Carlsbad, California, home.

**Randy Thayer, MSIE 1980**, plant manager of the Doraville, Georgia, General Motors Assembly Plant, has been transferred to Michigan, where he is now plant manager of GM's Lansing Metal Center.

**Stavros "Steve" G. Trastelis, BSTE 1976, MSIE 1979**, has recently added operations responsibilities to his job as corporate vice president for TQM,

## Jane Ammons Elected IIE Fellow

Jane Ammons, NSF Advance Professor of Engineering and Professor of ISyE, has been named a Fellow of the Institute of Industrial Engineers (IIE). The IIE Fellow award acknowledges outstanding leaders of the profession who have made significant, nationally recognized contributions to industrial engineering. With more than 17,000 members and 150 chapters worldwide, IIE is the world's largest professional society dedicated solely to the support of the industrial engineering profession.

Ammons, an IIE member for 28 years, is recognized for her "significant and sustained technical and service contributions to the field of industrial engineering," according to IIE officials. "Dr. Ammons has achieved outstanding accomplishments in manufacturing systems research, in engineering education scholarship, in service to IIE, and in service to interdisciplinary activities as an ambassador for the industrial engineering field."



She joins several current and emeriti ISyE faculty who have been honored with IIE Fellow distinction, including:

- Robert Lehrer (1963)
- James Apple (1968)
- Harold Smalley (1968)
- Cecil Johnson (1980)
- Gerald Thuesen (1987)
- Michael Thomas (1988)
- Jack Lohmann (1996)
- Leon McGinnis (1996)
- Don Ratliff (1996)
- John Jarvis (1997)
- Justin Myrick (2000)
- Donovan Young (2000)
- Jerry Banks (2002)

training and development, and strategic human resources at Microfibres International in Winston-Salem, North Carolina.

**Patrick Sweeney, BIE 1964**, retired in April as assistant director of the Veterans Administration Regional Office in Montgomery, Alabama, after 27 years of Federal service. Sweeney previously served the VA in Jacksonville, Florida; Washington, D.C.; and Atlanta. He is a graduate of the Federal Executive Institute and received its Honorary Leadership Award in 1996. He lives in Montgomery, where he is active in local mediation, the United Way, and the American Red Cross.

**Justin Whitfield Wiechart, BIE 1998**, is a realtor with RE/MAX realty Team in Southwest Florida. Wiechart is the former president of the inaugural Radiant Systems Georgia Tech Club in Alpharetta, Georgia; she is currently working to develop a Ft. Myers/Naples Georgia Tech Club. Wiechart and her husband, Matthew Wiechart, BME 1997, hosted a Freshman Send-Off picnic at their Cape Coral home in August 2002.

**James A. Wills, BIE 1951**, is retired after holding management and engineering positions with the U.S. Department of Defense, Kurt Salomon Associates, and various companies in the garment industry. He lives in San Antonio, Texas, where he has a small sewing business.

*Correction from Spring 2003 issue:*

**Dr. Fay Cobb Payton, BIE 1989**, received her Ph.D. in Information and Decision Systems from Case Western Reserve University. We apologize for the error.

#### Marriages

**Whitney Hopkins, BIE 2000**, married Doug Appenfelder, BEE, in January 2003. The couple lives in Atlanta, where Hopkins is a quality engineer for Radiant Systems and Doug is a network engineer for Verizon Wireless.

**Clyde A. Sheehan, BIE 1984**, married registered nurse Susan Cole

of Savannah on November 10, 2001. The couple's first child, Thomas Alexander, was born July 15, 2002. Clyde works in private practice as a child, adolescent, and adult psychiatrist in Tupelo, Mississippi.

#### Births

**Sarah Conklin Bridges, BIE 1995**, announces the birth of Andrew David, born October 26, 2001, joining brother Jonathan. Bridges is CEO and CFO of the Bridges' home in Hendersonville, Tennessee.


**Nicole Pitts Ferrell, BIE 1998**, and her husband Cres Ferrell, ME 1999, are parents of a new daughter, Charlotte Elaine Ferrell, born Octo-

ber 29, 2002. The family resides in Alpharetta, Georgia.

**Brent Goolsby, BIE 1992**, and Janet Nelson Goolsby, BIE 1992, welcome a second daughter, Ashlyn Brooke, born September 27, 2002. Ashlyn joins three-year-old Alexis. The family resides in Marietta, Georgia, where Brent is a financial advisor with Schiffer, Wynne & Associates.

#### Deaths

**William L. (Billy) Camp, BIE 1948**, in Rome, Georgia. Camp was the founder of Camp Oil Company.

**Paul Ray Cheney, BIE 1950**, in Dawson County, Georgia. Cheney was a retired engineering consultant. 

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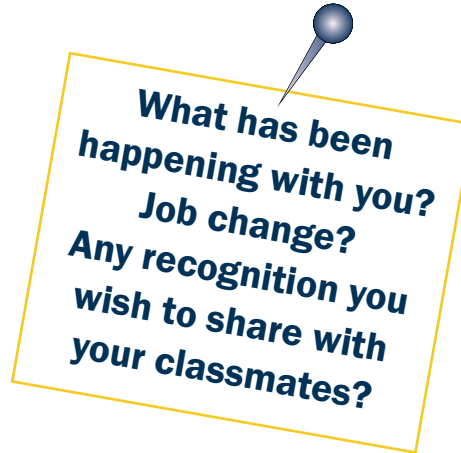
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