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READER OPINIONS

**Have questions or comments
about the newsletter?
We want to know what you think!**

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LETTER FROM THE CHAIR



CEE WHAT WE ARE DOING TODAY

By Dr. Joseph B. Hughes, Chair

I am privileged to introduce the first issue of the newsletter since I became the chair of Tech's fine School of Civil and Environmental Engineering (CEE). This is an exciting time at Georgia Tech, especially in CEE. The demand for high-quality civil and environmental engineers has never been higher and there are great global opportunities for our graduates. Global economic expansion has created a demand for talented engineers, and universities around the globe are responding to satisfy this need.

As countries compete to engineer international expansion, civil and environmental engineers face the challenge of creating the world's sustainable infrastructures. Unfortunately, the United States is not responding as quickly as many other countries that are eager to accept the challenge. India alone is graduating many more civil engineers each year than all of the schools in the United States combined.

In order for Tech engineers to compete in the increasingly international marketplace, we must graduate the most academically qualified, professionally accomplished civil and environmental

engineers in the world. President Clough has already articulated this vision in the Institute's Strategic Plan, which emphasizes the expansion of local, regional, and global outreach programs through student-focused education.

In this newsletter, you will read about how CEE is fulfilling President Clough's vision by expanding student-centered educational opportunities in an international marketplace. Over the course of the last year, it has been my privilege to represent CEE and Georgia Tech in Angola, China, France, Switzerland, and Kuwait. Other CEE faculty members and students are also involved in projects that take them around the globe. Our global focus is exemplified by the Georgia Tech chapter of Engineering Students Without Borders, whose members are working to bring clean water to the 175-family town of La Lima, Honduras (see story on page nine).

We also remain committed to serving local needs. We know that the majority of our alumni are native to Georgia or the Southeast and live and work near Georgia Tech after graduation.

At CEE, we strive to maintain a vital connection to both stateside alumni and those who have moved overseas. The profiles in this issue of our newsletter only hint at the tremendous diversity of activities and personalities working in CEE. I hope that they stimulate your interest, and that you keep in touch. We certainly plan to do so.

ALUMNI PROFILE

ALUMNUS CONSTRUCTS
A CONVERSION WITH
BIBLICAL PROPORTIONS

By Andrea Bé



Howard Tellepsen Jr.

Texas is known for producing big things, so it's no surprise that 1966 Civil Engineering Tech alumnus Howard Tellepsen Jr. has constructed a big career out of building large structures in his native Houston.

His latest endeavor is no exception. With Tellepsen at the helm, the nearly century-old Tellepsen Builders plans to transform the vacated Compaq Center—once home to the Houston Rockets & Comets basketball teams—into one of the nation's largest churches.

After his church membership doubled in size to nearly 30,000 members, church leader Joel Osteen hired Tellepsen Builders to transform the Compaq Center into a large house of worship. The over \$70 million renovation will result in the 16,000-seat Lakewood Church.

"It's a massive, unbelievable project that is very visible," says Tellepsen. "This is a unique project because you



Tellepsen Builders faced many challenges while renovating Houston's Compaq Center.

are trying to create an intimate sanctuary environment with good acoustics and lighting in this enormous arena-like building."



The new 450,000 SF Lakewood Church will seat 16,000.

The unique project has created many challenges. The project site is located next to one of the busiest freeways in Houston. Concrete had to be poured on the basketball floor in order to provide the slope needed for the theater seats. Steel catwalks were installed in the ceiling area to accommodate the lighting and staging requirements for services and television broadcasts. Most impressively, the company removed concrete seating on the west end of the arena and replaced it with a structural steel



The renovated arena will feature a 250-seat choir loft, an orchestra pit, and two waterfalls.

frame for the pulpit and stage area, which will feature choir lofts for 250 people, an orchestra pit that can be raised and lowered, and waterfalls that will flank the stage. In addition to the renovation of the current structure, a new 26,000 SF central plant is being built atop the existing food court. The new facility will total over 450,000 SF. Says Tellepsen, "The combination of renovation and new construction, its complexity, the tight job site, and the very aggressive schedule has meant that this is the most challenging project that our company has ever undertaken." The project is also preparing Tellepsen for his next challenge: the \$55 million construction of the new Windsor Village United Methodist Church, also in Houston.

Tellepsen, the third-generation owner of Tellepsen Builders, one of the largest

building contractors in Houston, is also a second-generation Tech graduate, following in the footsteps of his father, Howard Tellepsen Sr., a 1934 Civil Engineering graduate who served on the Georgia Tech Foundation Board of Trustees until his death. "I remember in 1952 when I was just eight years old," reflects Tellepsen, "Dad received the Distinguished Alumni Service Award, which was quite an honor. He brought

the whole family all the way from Houston to attend the ceremony. We also went to see Georgia Tech play football in the Sugar Bowl in New Orleans and the Orange Bowl in Florida." Despite his father's loyalty to Tech, "there was never any pressure for me to go there," says Tellepsen. "I could have gone wherever I wanted, but I just had my heart set on going to Georgia Tech."

While at Tech, Tellepsen served as president of both his sophomore and junior class before becoming student body president in his senior year. He later became one of the first members of Tech's Civil and Environmental Engineering Advisory Board. In 1992, his father was inducted into the College of Engineering Hall of Fame for his distinguished career, and in 1996, Howard was awarded the College of Engineering's Distinguished Engineering Alumnus Award.

Howard Tellepsen's contributions in business and service to the community will be appreciated for many years to come. There seems no end to what he may accomplish in life. Says Tellepsen, "I bring passion and energy to whatever opportunity that comes my way. I have been blessed to have a lot of enthusiasm and energy. It makes living life a lot of fun. I just love life for all of the opportunities it brings."

ALUMNI PROFILE

Ken Whisenhunt: Engineering a Super Bowl Contender

By Andrea Bé

Although he graduated with a degree in Civil Engineering from Georgia Tech in 1990, Ken Whisenhunt has never worked as an engineer.

However, by most standards he is a bona fide success story.

The sky's the limit for the former Tech football

player, whose love of football began during his youth at a local YMCA football camp. Whisenhunt's athletic skills have given him a professional career, taking him from an Atlanta Falcons tight end to his most recent position as the Pittsburgh Steelers' offensive coordinator who posted a 15-1 record this year. Atlanta-born Whisenhunt credits Tech for the discipline and organization that underlie his success.

AB: When did you first develop an interest in football?

KW: I started playing with the local YMCA football camp. I played football in high school and was heavily recruited as a junior, until I hurt my knee. Late in my senior year, my coach decided to take me to Georgia Tech during spring practice during Coach Curry's first year. He took me to lunch and made me feel like he really wanted me there, even though it was only a walk-on position. **When I walked into that stadium, that impressive Georgia Tech stadium at the time, I guess that is when I decided that is where I wanted to walk on.**

AB: What do you consider to be one of the highlights of your Georgia Tech football career?

KW: It was during the Georgia Tech vs. Notre Dame game, during my freshman year. I was the quarterback, a walk-on and hadn't played any snaps, so no one knew who I was. The quar-



Ken Whisenhunt,
Offensive Coordinator
for the Pittsburgh
Steelers

terback got hurt early, so they put me in there. Notre Dame was the number-one team in the nation and Georgia Tech was 1 and 8 at the time. We played them to a tie. So that was a big deal.

AB: Why did you choose Civil Engineering as your major?

KW: I came in undecided. I started in Chemical Engineering and started on that track. Then I did a summer job as an engineer in training at Vogtle, which is the nuclear power plant outside of Augusta. I worked in the construction aspect of it and I enjoyed it. I enjoyed that aspect of engineering, so that's when I decided that I wanted to be a civil engineer.

AB: What prepared you for coaching for the NFL?

KW: You know, looking back on it, I think GT was a big part of preparing me. It taught me how to survive more than anything else. It's a very difficult school. It trains you to be successful. **If you can make it through Georgia Tech and graduate, then you've learned how to be organized, how to be disciplined.** It taught me how to be creative in solving problems. It taught me how to interact with other people.

I think GT is a hard enough school as it is without playing football, and then when you play football, you have to budget your time, be disciplined with your school work, and that has certainly helped me develop my organizational skills, which I use now. That is a big part of this job, being organized, making sure you stay ahead of the curve as far as being prepared. So for that, **GT has certainly helped to prepare me. Maybe I'm not doing engineering right now, but it certainly did prepare me for this. I really believe that.**

AB: When did you join the Pittsburgh Steelers?

KW: This is my first year as the offensive coordinator. I had been with the Steelers three years previous to that as their tight end coach.

AB: You had a really good year.

KW: Yeah, we had a really good year. You know, we fell short of the goal of getting to the Super Bowl, but you

know, fifteen wins in the regular season is something that has never been done by the Pittsburgh Steelers or in the AFC. So that is quite an accomplishment for this team.

AB: What are your greatest challenges?

KW: This is a game of highs and lows. You are not always going to be successful. You have to deal with defeat, the times you go out there and you don't succeed and your plan doesn't work. That is the tough aspect of it. You don't get a break. You have to immediately get prepared and get rolling for the next week. You have to put it behind you. So the biggest challenge is not to dwell too much on whether you've had success or failure, but to push on and get ready for the next week.

AB: It is clear that you would like to be a head coach in the NFL someday, but would you ever consider coaching college football?

KW: Absolutely, especially at GT I would. I have a lot of allegiance to my school. **I love Georgia Tech. I think it would be a great honor if one day down the road I had an opportunity to coach there.**

AB: Tough and intelligent: Do you think that is an accurate characterization of you? I've read that you get into the heads of the players.

KW: Having played at GT and having played in the NFL, I remember things that were important to me as far as what a coach told me and what we believed in. I've just tried to relate those things back to the players.

AB: If people could know one thing about Ken Whisenhunt, what would you want them to know?

KW: **I consider Georgia Tech to be a big reason why I've had any success both as a player and a coach** and I'm grateful to both the students and faculty there that helped me get through.

Ken Whisenhunt lives in Pittsburgh with his wife, Alice, and their two children. He has found success with the Pittsburgh Steelers, but don't be surprised if someday you spot him on the Georgia Tech sidelines wearing the head coach's hat.

CEE's Program in Engineering Communications

By Dr. Lisa Rosenstein



Dr. Lisa Rosenstein

In 1998, CEE graduate Joseph Mundy and his family created an endowment that established the School's own in-house communications program, the Charles E. Gearing Program in Technical

Communications. Mundy supported the in-house model because he understood first, that engineers need written, visual, and oral communications skills in order to compete and succeed in the workplace and second, that in order for the communications instruction to be meaningful, it has to be taught within the context of the discipline.

When I was hired to create the communications program within CEE, I was given the freedom to design the program any way I saw fit. I set out to create a comprehensive program that would exist on both the undergraduate and graduate level and that would address fundamental and advanced principles of engineering communication. In addition to achieving this goal through teaching and co-teaching

formal courses in the School, I guest lecture in a variety of courses, run writing and presentation workshops, assist individual students and student teams on project submittals, and guide graduate students through the thesis and dissertation process. I am proud to say that as a result of the early success of the program, Marion Mundy, in 2000, doubled her late husband's initial endowment.

The program has been successful according to all sorts of formal assessment tools. However, I get the greatest sense of satisfaction from the personal feedback I get from students who thank me in a myriad of ways for teaching them the skills they know they will need to succeed as the next generation of civil engineers.

The Undergraduate Program

On the undergraduate level, the program directly links communication skills with course content by meaningfully integrating communications instruction into some of the School's sequenced core courses. For example, in the sophomore level Engineering Systems course, students are taught how to structure engineering reports, integrate visual elements, and give technical presentations about their work. In their senior year, however, these skills are enhanced in the Capstone Design Course as students

learn how to write project proposals and design reports, and deliver technical presentations not only to their instructors, but also to their project sponsors, who often include local government officials, members of regional agencies, or engineers in high-profile firms.

The Graduate Program

On the graduate level, the program directly links communication skills with the course content by incorporating a stand-alone course called Engineering Communication in which students use content from their own course of study to improve their skills in written, visual, and oral communication. The overarching goals of the course are to demystify the writing and communication process—to teach students that there are 1) standard practices in writing and design that need to be observed; 2) formal requirements in technical documents that need to be met; 3) audience considerations that need to be addressed; and 4) strategies available to help them be successful in their communication efforts. These goals are met as the students first learn the principles of good technical style, and then apply these principles as they learn to write well-written technical documents, create and describe visually effective graphics, and create and deliver professional-quality technical presentations.

GEORGIA TECH CAMPUSES

Georgia Tech-Savannah

Inspired by the people and places within the Coastal Empire, Georgia Tech's Savannah campus works to turn local assets into global solutions. At GT-Savannah, professors educate the world's best and brightest engineers, incorporating an active seaport and military bases, manufacturing plants, technology test-beds, and the study of art, culture, and history into a "living laboratory" in areas of pristine natural beauty.

The rest of the world may not yet know of GT-Savannah, but they will.

For more information, please visit <http://www.gtsav.gatech.edu/index.html>



GEORGIA TECH-LORRAINE

Summer Program 2005 May 16-August 1

The Georgia Tech Lorraine Summer Program offers undergraduate students the opportunity to spend an entire summer in a culturally rich environment in the heart of Europe. Undergraduate Civil and Environmental program students will participate in the Lorraine Summer Program 2005. The program offers a combination of engineering, management, humanities, social science, and French and German language courses taught by faculty from Georgia Tech at a campus in Lorraine, France.



Georgia Tech-Lorraine campus

"It was truly a wonderful and life changing experience. I learned so much, not only academically, but in all areas of life."

-Summer 2001 Evaluation

Dr. Hermann Fritz Hunts for Tsunami Clues

By Andrea Bé

On December 26, 2004, an Indian Ocean tsunami caused by a seafloor earthquake ravaged the coasts of eleven countries, claiming more than 280,000 lives in South Asia.



The Maldives (pictured above) and the entire coastline of Sri Lanka were damaged by the December tsunami. The National Oceanic and Atmospheric Administration has begun installing bottom-pressure tsunami sensors on the Pacific Ocean's seafloor. The sensors are acoustically linked to surface-level buoys that communicate data to a warning center satellite, giving a more accurate detection of tsunami activity.

Although he was thousands of miles away from the tsunami, CEE Assistant Professor Dr. Hermann Fritz was personally affected by the tragedy it caused. A tsunami expert working out of Georgia Tech-Savannah, Dr. Fritz's research area includes working with tsunami detection and warning systems.

Just weeks after the Indian Ocean tsunami wrought its terrible destruction, Dr. Fritz and a research team including University of Southern California Tsunami Research Center members arrived on the southern coast of Sri Lanka to study the wreckage left behind for clues about the tsunami.

In January, Dr. Fritz and his team visited affected coastline areas

in Sri Lanka and the Maldives to perform "ground truthing," gathering information about the tsunami's source and impact. In addition to identifying waterlines on still-standing houses and buildings, team members searched for clothes and seaweed washed onto tree-tops, which provided valuable information about the tsunami waves' depths and water levels. They also looked for evidence such as watches and clocks that had stopped at the same time, which indicate when the waves arrived at a given location.

Dr. Fritz carried on the detective work by interviewing survivors who provided eyewitness accounts of how many waves they saw and the waves' sizes. Says Dr. Fritz, "Taking this information from a number of eyewitness accounts generates consistent information that can be relied upon." In March, Dr. Fritz made another trip to Sumatra, Indonesia, the site of the December tsunami's epicenter and to Somalia on the horn of Africa, where his research team was the first to record data from the tsunami.

Despite tsunami warning systems in the Pacific Ocean and in Japan, it is still difficult to predict when and where tsunamis will occur. Although better systems "have increased the success rate of detection in the Pacific in recent years," says Dr. Fritz, detection alone will not save lives. If inhabitants can recognize warning signs that indicate tsunamis, they can make life-saving evacuation plans. As an example of education's role, Dr. Fritz points to a Papua, New Guinea, village chief who learned about tsunamis from a documentary. One night, at midnight, an



Dr. Hermann Fritz collecting clothing from treetops.

earthquake rattled the chief's village. Based on the information he learned from the documentary, the chief knew a tsunami might soon occur. As a precaution, he evacuated the village's 500 inhabitants. A tsunami did occur, but there was very little loss of life. "Education works," exclaims Dr. Fritz, "in some cases more efficiently than the warning system."



Dr. Fritz (right) measuring a waterline.

The word "**tsunami**" comes from a Japanese word meaning "harbor wave." There are three types of tsunamis. The most common type, the tectonic tsunami, is often generated by seafloor earthquakes, such as the one that produced the December tsunami in the Indian and Eurasian subduction zone. A landslide tsunami is generated by an impact that causes an underwater landslide and has shorter wavelengths but generates higher source wave heights than a tectonic tsunami. A more exotic type of tsunami occurs when an asteroid impacts the ocean.

FACULTY HONORS AND AWARDS

A CONCRETE ACCOMPLISHMENT

Walter P. Moore Jr. Faculty Achievement Award



Dr. Kimberly Kurtis

Dr. Kimberly Kurtis is the 2005 recipient of The Walter P. Moore Jr. Faculty Achievement Award, which recognizes new faculty members for their excellence and innovation in the teaching of concrete design, materials, or construction. The award honors the late Walter P. Moore Jr., American Concrete Institute (ACI) Fellow, former ACI Board member, and a structural engineer and educator in Texas.

Dr. Kurtis joined the Structures, Mechanics, and Materials group in Tech's School of Civil and Environmental Engineering in January of 1999. Her research and teaching

interests are in construction materials, with a strong emphasis on microstructure and the durability of cement-based materials. Dr. Kurtis actively engages in service to the cement-based materials research community. She is the former ACI chairman of Committee E802: Teaching Methods and Educational Materials. She is currently secretary of ACI Committee 236: Materials Science of Concrete and an associate member of Committee 201: Durability. In addition to these ACI activities, Dr. Kurtis currently serves on the Program Committee for American Ceramic Society's Cements Division and is a member of Transportation Research Board Committee AFN30: Durability of Concrete. Dr. Kurtis has served as the associate editor of the *ASCE Journal of Materials in Civil Engineering* since 2000 and has sat on the Editorial Board of Cement and Concrete Composites since 2004.

EXCELLENCE IN EDUCATION

Georgia Engineer's Week Engineer of the Year in Education



Dr. Glenn Rix

Dr. Glenn Rix, an associate professor in Geosystems Engineering, was the recipient of the Georgia Engineer's Week Engineer of the Year in Education Award. The award recognizes outstanding teaching and education accomplishments in engineering within Georgia. During his fifteen-year career at Georgia Tech,

Dr. Rix has taught more than 1,600 undergraduate and graduate students and frequently teaches continuing education courses for engineering practitioners. He maintains an active research program that focuses on soil dynamics and geotechnical earthquake engineering, and is the author of more than seventy-five papers in leading journals and international conference proceedings. Dr. Rix is an active member in numerous professional societies and has served as the president of the ASCE's Georgia Section and of the Environmental and Engineering Geophysical Society.

STUDENT AWARDS



Charles Kennan Crane

Georgia Engineer's Week Engineering Student of the Year Charles Kennan

Crane was the recipient of the 2005 Georgia Engineer's Week Engineering Student of the Year Award. This award

recognizes outstanding undergraduate engineering students in Georgia. Crane is a senior in Tech's Civil and Environmental Engineering program with a focus on Structural Engineering. He plans to continue his education at Tech by pursuing a master's degree in Structural Engineering. Crane currently serves as the president of the student chapter of ASCE at Tech.



Leonardo Dueñas-Osario

2005 Georgia Tech Student Paper Competition Award

Leonardo Dueñas-Osario, a CEE Ph.D. student, was selected as a recipient in the Georgia Tech Student Paper Competition, sponsored by Science Applications

International Corporation (SAIC). His paper, entitled "Interdependent Response of Networked Systems," is based on his Ph.D. research sponsored by the MAE Center under Project CM-7. Dueñas-Osario's work was selected on the basis of originality or uniqueness, significance of the results, and the effectiveness of the presentation. Mr. Dueñas-Osario is co-advised by Dr. Barry Goodno (CEE) and Dr. Jim Craig (AE).

School Chair Wins ASCE Prize

Walter L. Huber Civil Engineering Research Prize



Dr. Joseph B. Hughes

Dr. Joseph B. Hughes, professor and chair of the College of Civil and Environmental Engineering, is the recipient of the 2005 Walter L. Huber Civil Engineering Research Prize. The Prize is awarded to ASCE members for notable achievements in civil engineering research, with preference given to young members whose early accomplishments indicate future fruitful careers. In October of 1964, Alberta Reed Huber endowed this prize in honor of her husband, Walter L. Huber, a former ASCE president. Dr. Hughes received a B.A. in Chemistry from Cornell College and an M.S. and a Ph.D. in Environmental

Engineering from the University of Iowa. A member of the U.S. EPA's Standing Science Advisory Committee on Environmental Engineering, Dr. Hughes is the associate director for research of the EPA's South and Southwest Regions' Hazardous Substances Research Center and is the chair of the Science Advisory Board of the EPA's West Coast Hazardous Substances Research Center. A recipient of Rice University's Charles Duncan Award for Outstanding Academic Achievement, Dr. Hughes is a member of Chi Epsilon and has twice received the Rice University ASCE Outstanding Professor Award.

CEE NEWS

NEW FACULTY

The School of Civil and Environmental is pleased to have welcomed five new faculty members this year.

**Dr. Susan Burns**

Associate Professor,
Geosystems
Engineering

Dr. Susan Burns joined the School of Civil and Environmental Engineering at Georgia Tech in December of 2004, after serving for seven years on the faculty at the University of Virginia. She earned a bachelor's degree in Civil Engineering in 1990, an M.S. in Civil Engineering and an M.S. in Environmental Engineering in 1996, and a Ph.D. in Civil Engineering from Tech in 1997.

Her research interests include geo-environmental engineering, engineered materials, physical and chemical behavior of soils, cone penetration testing, and image analysis.

Dr. Burns is a member of the ASCE Geoenvironmental Committee and the National Research Council Committee on Geological and Geotechnical Engineering, and is the president-elect of the United States Universities Council on Geotechnical Education and Research.

**Dr. Mulalo Doyoyo**

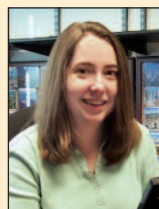
Assistant Professor,
Structural Engineering,
Mechanics & Materials

Dr. Mulalo Doyoyo joined the School of Civil and Environmental Engineering at Georgia Tech in August of 2004. He received a B.S. in Mechanical Engineering from the University of Cape Town, Republic of South Africa, and an M.S. in Applied and Solid Mathematics and a Ph.D. in Solid Mechanics at Brown while serving as a research assistant in the Nano and Micromechanics Laboratory. He has also worked as a research scientist and a lecturer in the Department of Ocean Engineering at MIT's Impact and Crashworthiness Laboratory and the Joint MIT-Industry Consortium on Ultralight Metal Body Structures.

Dr. Doyoyo's interdisciplinary

research in materials and materials systems covers a wide range of scientific fields, including engineering, physics, and mathematics. He is currently investigating the mechanics and physics of microstructurally-assembled materials in novel applications such as adaptive biomedical devices, shape morphing structures, shock mitigating platforms, multifunctional smart composites, and crashworthy/fuel-efficient auto/marine/aerospace vehicles. He focuses on the mechanics and physics of cellular and disordered unit assemblies, assembly macro-synthesis and optimization, and assembly-fabricated engineering systems and infrastructures. He has also worked on the multiaxial shock and crash response of crushable ultralight cellular composites and terminal ballistics in advanced lightweight metal-ceramic armors.

Dr. Doyoyo is a member of Sigma Xi, the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the Society for Experimental Mechanics.

**Dr. Laurie Anne Garrow**

Assistant Professor,
Transportation Systems
Engineering

Dr. Laurie Garrow joined the School of Civil and Environmental Engineering at Georgia Tech in July of 2004. She received the John T. Caldwell scholarship from North Carolina State University, from which she graduated summa cum laude with a B.S. in Civil Engineering and a B.A. with honors in Spanish in 1995. A National Science Foundation fellow, Dr. Garrow earned an M.S. in Civil Engineering and a master's degree in Public Affairs from the University of Texas at Austin in 1997, and a Ph.D. in Civil Engineering from Northwestern University, where her dissertation won first prize in the 2004 Aviation Applications Section of INFORMS.

Dr. Garrow's research focuses on the development of advanced models of travel demand, the application of new optimization techniques to travel demand modeling, and the development of pricing and revenue manage-

ment models. Her research includes travel behavior analysis and forecasting; the application and estimation of advanced discrete choice models; airline revenue management, pricing, and schedule planning; the integration of customer and competitive market information into forecasting models; survey research methods; and transportation policy analysis.

Dr. Garrow is an active member of the Transportation Research Board, INFORMS, and AGIFORS, was appointed to the TRB Committee on Passenger Travel Demand Forecasting, and is an officer of the INFORMS Aviation Applications Subdivision.

**Dr. Jim Spain**

Professor,
Environmental
Engineering

Dr. Jim Spain joined the School of Civil and Environmental Engineering at Georgia Tech in January of 2005. He received a B.S. in Biology from the University of Texas at Arlington and a Ph.D. in Microbiology from The University of Texas at Austin. For five years, Dr. Spain studied pesticide biodegradation in marine environments as a postdoctoral fellow and research scientist at the U.S. Environmental Protection Agency Marine Environmental Research Laboratory. Prior to joining Tech, Dr. Spain directed the Environmental Biotechnology research program at the Air Force Research Laboratory in Panama City, Florida, where he studied the biodegradation of synthetic organic compounds in the environment.

Working at the interface between basic microbiology research and practical applications, Dr. Spain seeks to solve environmental problems by researching the discovery and construction of bacteria for degradation of substituted aromatic compounds; the physiological and ecological factors controlling microbial processes; and the discovery of biocatalysts for green-chemistry synthesis of novel materials.

Dr. Spain is a former editor of *Applied and Environmental Microbiology* and has authored more than 100 peer-reviewed papers as well as several books and

Continued on page 8

New Faculty (Jim Spain) Continued from page 7

numerous book chapters on organic compounds' biodegradation and biosynthesis. He has served on review committees for the EPA, DoE, NIEHS, and DoD and on the editorial boards of a variety of journals.



Dr. Arash Yavari

Assistant Professor,
Structural Engineering,
Mechanics & Materials

Dr. Arash Yavari joined the School of Civil and Environmental Engineering at Georgia Tech in January of 2005. He received a B.S. in Civil Engineering from Sharif University of Technology, Tehran, Iran, in 1997, an M.S. in Mechanical Engineering from George Washington University in 2000, and a Ph.D. in Mechanical Engineering (Applied Mechanics option with a Mathematics minor) from the California Institute of Technology in 2004.

Dr. Yavari's areas of research include solid mechanics in small scales,

ferroelectrics, magnetoelastic and electro-elastic interactions, the lattice theories of solids, geometric continuum mechanics, configurational forces, and fractal fracture mechanics.

Dr. Yavari is a member of the American Academy of Mechanics, the American Society of Mechanical Engineers, the American Society of Civil Engineers, the American Institute of Aeronautics and Astronautics, the Society of Industrial and Applied Mathematics, and the American Mathematical Society.

FACULTY SEARCHES

Carlton Wilder

Chair in Environmental Engineering

The Carlton Wilder Chair in Environmental Engineering is an endowed position at the junior-faculty level for candidates with interests in water science and engineering. Applications are invited at the assistant and associate professor levels. Emphasis is placed on candidates with interests in water quality and water systems and processes. Key interest areas include water reclamation and reuse; physicochemical processes; aqueous organic-, geo-, and bio-chemistry; regional and global water quality and resources; innovative sensor and nanomaterials; toxicology; environmental-health engineering; and bioinformatics.

A Ph.D. is required and candidates

should have educational and research experience in the development of innovative research with the potential for interaction with existing research programs at the Georgia Institute of Technology. Interests in the investigation and pursuit of innovative approaches in water systems and research addressing human and environmental health and sustainability in an interdisciplinary setting are desired. Candidates must hold a doctoral degree at the time of appointment and have a demonstrated record of peer-reviewed publication of research. They must be capable of teaching undergraduate and graduate courses and show a clear potential for creative independent research leading to a strong extramurally-funded research program and national recognition. Screening of applicants will begin

immediately and will continue until the position is filled. Applicants should submit (i) a curriculum vita; (ii) statements of research experience, plans, and objectives; and teaching experience and interests; and (iii) names of four references to:

Environmental Engineering Search Committee
School of Civil and Environmental Engineering
Georgia Institute of Technology
790 Atlantic Drive
Atlanta, GA 30332-0355

Additional information describing the academic and research programs in the School and the EnvE program can be found at the School Web site: www.ce.gatech.edu. The Georgia Institute of Technology is an Equal Opportunity / Affirmative Action employer, and applications from women and under-represented minorities are encouraged.

Transportation Engineering

Tenure-track faculty position in Transportation Engineering at the assistant, associate, or full professor level. We are seeking outstanding applicants to add to our existing strengths in Transportation Engineering. Our primary interest is for candidates in the broad area of transportation design who preferably have professional engineering experience and whose research interests include geometric design, transportation safety, intermodal freight systems, or context sensitive design. Candidates from other transportation areas, including network modeling, traffic flow theory, design of transit, and

other scheduled services, are also strongly encouraged to apply. The ideal candidate will complement existing strengths and ongoing research of the Transportation faculty, which include multi-modal infrastructure design, infrastructure/asset management, GIS, travel demand modeling, airline revenue management, system operations, human/vehicle interaction, ITS applications, and safety-conscious planning.

Screening of applicants will begin immediately and will continue until the position is filled. Assistant, associate, and full professor appointments will be considered, depending on the qualifications of the candidate. Candidates must hold a doctoral

degree at the time of appointment.

Applicants should submit a cover letter indicating the level of application (i.e., assistant, associate, or full professor), a curriculum vitae, a one-page statement of teaching interests and experience, a one-page statement of research interests and objectives, and a list of four references to:

Chair, Transportation Engineering Search Committee
School of Civil and Environmental Engineering
Georgia Institute of Technology
790 Atlantic Drive
Atlanta, GA 30332-0355

STUDENT NEWS

Brenda Vargas: Engineering a Better World

By Andrea Bé

Born in El Salvador during a civil war, CEE student Brenda Vargas, the founder of Tech's Engineering Students Without Borders (ESWB-GT) society, quickly became used to a borderless world. When she was nine years old, Vargas's family packed up and headed for the United States, eventually settling in Cobb County, Georgia.

Like her inclination to travel, Vargas' passion for civil engineering was inherited from her family. As she was growing up, her father, a dedicated civil engineer, would often wander onto construction sites. "We'd be driving along and my father would stop the car at a construction site and explain what was going on," says Vargas. "This happened all the time."

Currently a senior in BSCE, Vargas has embraced her father's passion and discovered one of her own while forming Tech's ESWB student chapter along with fellow CEE student Marcus Millard.

Vargas became interested in Engineering Without Borders (EWB) at the 2003 American Society for Civil Engineers Conference in Nashville, Tennessee, where she heard a compelling lecture by Bernard Amadei, EWB-USA's founding president. Amadei recalled how a young girl in Belize was unable to attend school because her days were spent carrying water back and forth from the river to her village. The girl's plight led Amadei



Brenda Vargas

to found EWB-USA, whose mission is to partner with disadvantaged communities and improve their quality of life through the implementation of environmentally and economically sustainable engineering projects.

Inspired by Amadei's words, Vargas created an EWB chapter at Georgia Tech in February of 2004, with a vision of offering Tech students the opportunity to develop their engineering skills while increasing cultural awareness through hands-on projects sanctioned by EWB-USA. "It seems we have filled a niche at Tech," says Vargas. Because of ESWB-GT's large membership of more than thirty-three undergraduate and graduate students and Tech's international reputation in engineering, ESWB-GT was awarded its own project in its first year.

In La Lima, Honduras, ESWB-GT students will repair and rebuild the water distribution system for around

1,000 people in the 175-family Central American village. "The goal is to educate the community in La Lima on how to maintain the water system, so they can sustain it long after we have left," explains Vargas. "People take better care of things when they take ownership of them."

Already in the planning stage, the Honduras trip is far from financed. ESWB-GT members will pay for everything—from equipment and travel to their meals—at an estimated cost of \$40,000.

"We have to raise a great deal of money in a short period of time," says Gayle Hagler, an ESWB-GT member and a Ph.D candidate in Environmental Engineering who is overseeing the group's fundraising activities. "We want our fundraising activities to reflect the values of our organization." ESWB-GT's first event is a Trash-a-thon, in which volunteers will clean up litter for one day in Atlanta's Home Park neighborhood.

ESWB-GT has already received support and encouragement from Tech faculty members, including CEE Chair Dr. Joseph B. Hughes and Dr. Jorge Vanegas, the group's faculty advisor.

Although Vargas plans to graduate from Georgia Tech in December of 2005, she looks forward to ESWB-GT moving forward in the future. "I will always want to be involved in this kind of work," says Vargas. "I would love to return to my country someday. I would like to put my skills to work in El Salvador." When that time comes, her ESWB-GT training will no doubt come in handy.

STUDENT ORGANIZATIONS



The American Society of Civil Engineers

President: Charles Kennan Crane

The largest student organization within CEE, ASCE holds biweekly chapter meetings during which speakers from various engineering firms present engi-

neering industry projects. ASCE meetings give students a great opportunity to network with professionals and other students while learning about career options in the "real world."

ASCE also holds an annual Industry Banquet where students network with professionals.

ASCE's spring conference is the Society's most important annual event and includes steel bridge and concrete canoe competitions, as well as smaller competitions in geotechnical design,

environmental design, and others that allow students to showcase their talents.

For more information, please visit: <http://cyberbuzz.gatech.edu/asce/index.html>



Chi Epsilon

President: Lindsey Kerns

Chi Epsilon is an invitation-only honors society for juniors and seniors in the top

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third of their Civil Engineering class. Members are invited and initiated into the Society at the end of every semester.

Founded on the principles of scholarship, character, practicality, and sociability, Chi Epsilon encourages its members to be highly educated, motivated, ethical engineers. During biweekly meetings, members listen to professors and company representatives present research and employment opportunities. The Society also hosts a social once a semester. The Society's major fundraising activity is the sale of FE/EIT review books to Tech students.

Chi Epsilon welcomes company speakers eager to share what they do with Tech's top Civil Engineering students.

For more information, please contact Holli Jones at gtg242b@mail.gatech.edu or at 678-471-2194.



Engineering Students Without Borders at Georgia Tech

President: Brenda Vargas

ESWB-GT is a member of Engineers Without Borders-USA (EWB-USA), which acts as a project facilitator by connecting communities in developing nations with groups of students, faculty members, professional mentors, and non-governmental organizations to help develop sustainable solutions for engineering problems. EWB-USA projects include building construction and the installation of solar energy panels, drip irrigation systems, wells, latrines, and water distribution systems.

In addition to projects offered through EWB-USA, ESWB-GT independently pursues service and education projects within the Atlanta area, including partnering with other

organizations in low-income housing construction and hosting lectures about global health, sustainability, and engineering opportunities.

For more information about this organization, please visit:

<http://cyberbuzz.gatech.edu/ESWB/>



Georgia Tech Student Chapter of the Earthquake Engineering Research Institute

President: Jamie Padgett

The purpose of the GT-EERI is to promote the reduction of earthquake risk by advancing the science and practice of earthquake engineering. GT-EERI seeks to improve the understanding of the impact of earthquakes on physical, social, economic, political, and cultural environments by advocating comprehensive and realistic measures for reducing earthquakes' harmful effects. The Chapter also seeks to increase the awareness of earthquake hazards in the Mid-America region that are characterized by low-frequency, high-consequence seismic events.

For more information about this organization, please visit:

<http://cyberbuzz.gatech.edu/eeri/>

Geotechnical Society

President: Laura Spencer

The Geotechnical Society strives to advance the geosystems engineering profession through research and other activities, including lectures by consultants, researchers, and Geosystems Engineering students in order to facilitate professional communication. The Society also coordinates student participation in Atlanta-area geosystems activities, arranging conference

trips for Geosystems students. At Tech, the Society maintains the Robnett Library and the graduate Geosystems computer equipment.

The Society welcomes contributions to the Geotechnical Society Fund, which attracts donations from alumni, corporate donors, and friends of the Geosystems Engineering program.



The Association of Environmental Engineers and Scientists

President: David Himmelheber

AEES is the Environmental Engineering graduate student organization, which achieves the overarching goal of improving students' educational experience by sponsoring a variety of different events each year. Events include a panel discussion of an important environmental topic each fall; a spring symposium attended by representatives from many private and public sector organizations; a periodic distinguished lecturer series; an award recognizing outstanding master's and Ph.D. candidates each spring; and numerous social events throughout the year, including intramural sports teams and informal social gatherings.

AEES is interested in planning a monthly event in coordination with our corporate sponsors. The Association encourages sponsors to give campus talks about recent projects and arrange trips to field sites. To participate, please contact AEES President Dave Himmelheber at david.himmelheber@ce.gatech.edu.

For more information about AEES, please visit:

<http://www.ce.gatech.edu/groups/aees/index.html>

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2004-2005 Academic Year

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Chihyun Kuo

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Joseph Maxwell

Louis and Viola T. Dozier Scholarship
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STUDENT AWARDS

Sigma Xi – Best Ph.D. Thesis Award
Liang Ge

Sigma Xi – Best Undergraduate
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Excellence Award
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Outstanding Graduate Teaching Assistant
in CEE
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Wilder Bequest Reflects Donor's Dedication to Georgia Tech



Carlton S. Wilder

The late Carlton S. Wilder, CE 1959, M.S. 1961, loved Georgia Tech and credited his education with leading to his success as an engineer. When he died in November 2002, Wilder left \$1 million to the

Institute to establish a permanent endowment to fund junior faculty professorships in environmental engineering within the School of Civil and Environmental Engineering (see article on page eight).

Wilder grew up in Decatur and served in the U.S. Public Health Service after graduating from Tech. After a long and successful career in engineering, he retired as senior vice president of environmental consulting firm Camp, Dresser, and McKee (CDM), where he

worked on projects all over the world.

Mike Ridgewell, an Atlanta-based senior designer at CDM, worked with Wilder for many years. "Carlton was respected by everyone in the business," Ridgewell said. "He would always treat everyone the same."

For many years, Wilder was in charge of quality control. "For a firm our size, to be in charge of quality control and excellence is as high as you can go because the results are what we bring to our clients," Ridgewell said.

People who met Wilder often described him as a charming person and a true gentleman. "That's exactly the way he was," Ridgewell said. "People always gravitated toward Carlton because of his wisdom in the business, his personality, and his genuineness."

Wilder was a member of the National Society of Professional Engineers and was a registered professional engineer in eleven states. He also served as a diplomat in the American Academy of Environmental Engineers and was inducted into Georgia Tech's Academy of Distinguished Engineering Alumni.

"His devotion to Georgia Tech was

just passionate," said his widow, Jane W. Wilder. "It was the major reason for his bequest. Carlton wanted to assist other aspiring young engineers to have the experience that he had: to receive a quality education to help them fulfill their dreams."

The endowment for junior professorships is an appropriate way to honor her husband's memory, Mrs. Wilder said. It will help further the careers and research of outstanding early and mid-career faculty members, providing Georgia Tech with a major incentive to attract and retain tomorrow's leading teacher-scholars in environmental engineering. Preference will be given to faculty working in the study of water quality. Professorships will be awarded for four- to seven-year terms, providing support to encourage innovation in teaching and research and nurturing professional advancement during the critical pre-tenure years.

"Whenever Carlton had an opportunity to mentor young engineers, he delighted in doing so," Mrs. Wilder said. "It follows that, upon his death, he would want to continue to help young people in some way."



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