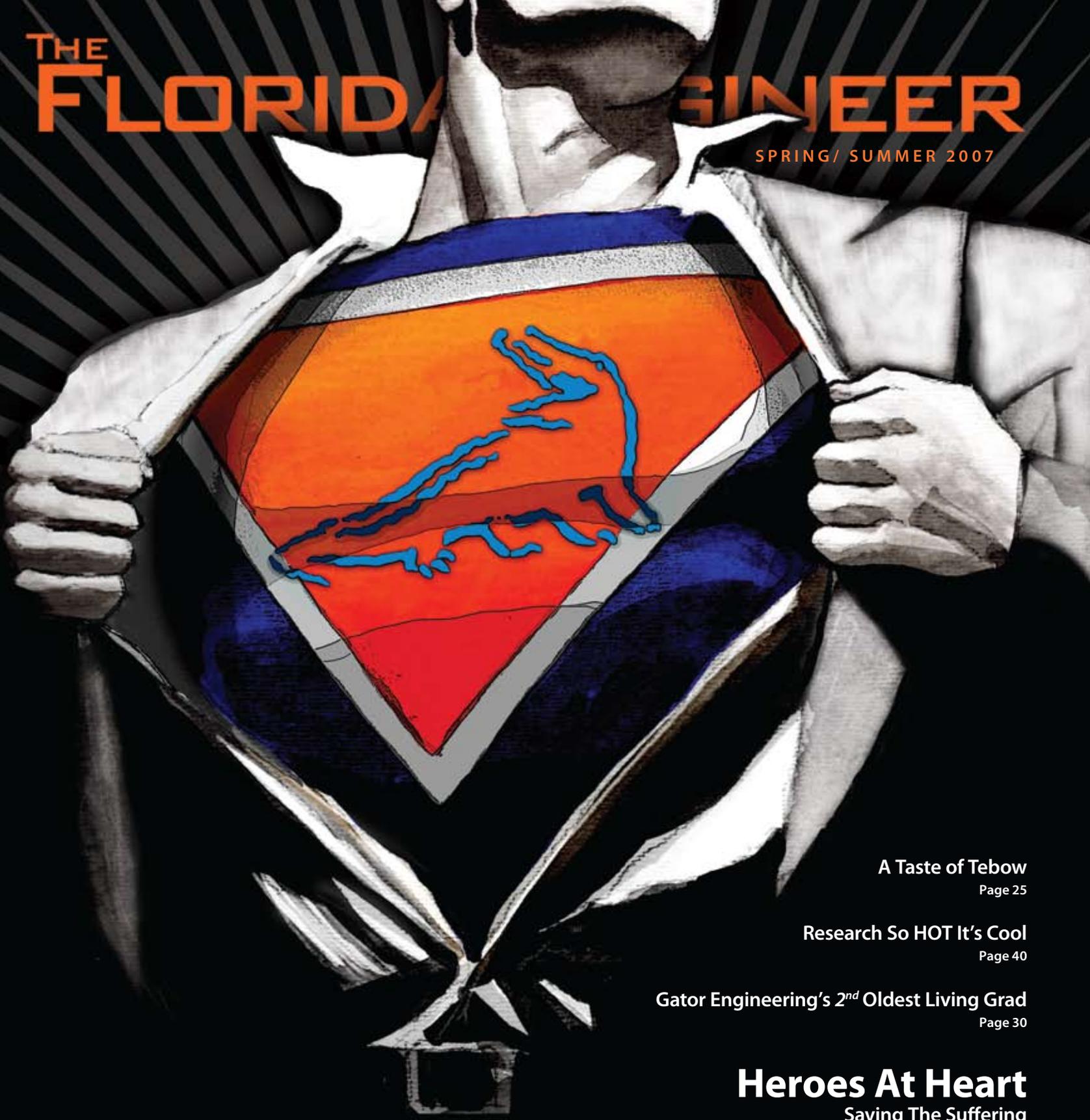


THE FLORIDA ENGINEER

SPRING / SUMMER 2007



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UF UNIVERSITY of
FLORIDA



The monumental tragedy at Virginia Tech has shocked all of us to our innermost core. Our deepest condolences go out to the families and friends of the victims there. Our thoughts and prayers are with the entire Virginia Tech community.

— Dean Pramod P. Khargonekar

On The Cover

Cover illustration by artist Jin Young Yi. To see more of Yi's work visit www.thefloridaengineer.eng.ufl.edu

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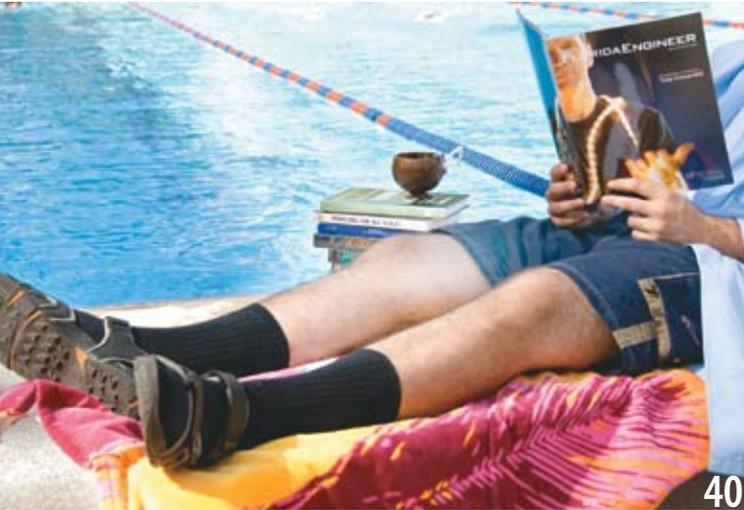
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EDITOR'S WARNING: Suggesting to our students that something just can't be done may result in unprecedented success, exceeded expectations, and utter shock and/or surprise.

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30 The Life & Times Of Albert Ellis O'Neill

Bert O'Neill (B.S. CE '35) is a few months shy of being our oldest living grad. He tells all in this kickoff to our centennial walk down memory lane.

40 11 Of The Summer's Hottest Research Projects

Grab your beach towel, sunscreen and lab coat — we're about to divulge the steamiest research this side of The Swamp.



Reitz Union northwest lawn

THE REGULAR STUFF

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The world just can't ignore the power of Gator Engineers — we're making headlines all over the place.

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In case you're wondering, 300 Weil Hall is his office. Clever, isn't it?

44 From 349 Weil Hall — A Letter From The Editor

Sure, the title may sound familiar, but this spin-off is no *Star Trek: Enterprise* — you'll enjoy it just as much as the original.

45 Dear Florida Engineer...

You write it, we read it...and if you're lucky we print it.

innovation central

Announcing The Broad-Bussel Atrium, generously contributed by Ruth K. and Shepard Broad and Ann B. and Irving Bussel.



“From little seeds will grow big projects that will help the world. I think the building will serve as an incubator for great ideas to spring forth, and we’re privileged to be a part of it.” — Ann Bussel

inspired?

For more information about how you can support any of the Gator Engineering programs mentioned in this issue, contact Engineering Development.

mmcel@eng.ufl.edu
352.392.6795

Research defies the unattainable. Casual conversations trigger life-changing ideas. The best discoveries start with people.

At the University of Florida, collaboration is as natural as opening a door. Construction is under way on the Biomedical Sciences Building — a state-of-the-art new home for the J. Crayton Pruitt Family Department of Biomedical Engineering.

We’re honored to announce The Broad-Bussel Atrium, generously contributed by Ruth K. and Shepard Broad and Ann B. and Irving Bussel. The Shepard Broad Foundation gave \$850,000 to create an atrium where ideas are born, connections are formed and innovation happens.

The gift was matched by the State of Florida’s Alec P. Courtelis Facilities Enhancement Challenge Grant Program — increasing it to \$1.7 million.

UNDER *the* MICROSCOPE

a deeper look at the heroic heart of engineers

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These Gator Engineering students' educations are going to waste — for all the right reasons.

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Wielding satellites in one hand and geometry in the other, our civil and coastal engineers are putting a superhuman hurt on disasters of all kinds. — *Megan E. Gales*

24 Do It Loud, Do It Proud

Gator Engineers do it with heart. "Do what?" you might ask. We don't want to ruin it for you. Go read it.

25 Making Tebow Tick

Peter Tebow, that is. And even if his baby brother wasn't *The Swamp's* most famous sophomore, this guy would still deserve all 952 words. — *Nicole Cisneros McKeen*

28 The Power Of One

After losing his little boy *Jordan*, mechanical engineer *James Klausner* opened a school for children with neuromuscular disabilities. — *Chris Traina*



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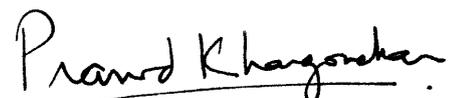
A Letter From The Dean

Our College has programs we can very proud of. Successful Transition through Enhanced Preparation for Undergraduate Programs — or STEPUP — and the Engineering Freshman Transition Program, both led by Associate Dean Jonathan Earle, bring incoming freshmen students to campus for a residential summer experience. The programs have increased student retention and success in engineering. Our student chapters of the Society of Women Engineers, Society of Hispanic Professional Engineers and National Society of Black Engineers have won honors. We are also very proud that the College ranks No. 1 in the nation in producing Hispanic engineers.

Engineering is a deeply optimistic endeavor. We pride ourselves in employing science and mathematics to create effective solutions to societal problems. Engineering innovations create new industries. Technological progress has contributed to major improvements in human life. It is clear, however, that our innovations and contributions to society are made better when a diverse team of engineers is engaged. It is thus imperative that we make engineering a more welcoming profession to all sectors of our society.

Vonnegut was quite skeptical of technology. He was disturbed by the loss of jobs due to advances in automation; he was concerned about the loss of human contact as a result of the Internet. I am far more optimistic about the positive impact of technology. The key is to integrate humanistic values and societal progress as we develop and implement technologies. By itself any technology can be used for good or evil.

Our students deserve a broad education deeply grounded in the sciences, arts and humanities so they can contribute to the realization of a prosperous and just society.



Pramod P. Khargonekar



From 300 Weil Hall

Engineering Change
Dean Pramod Khargonekar says his favorite part of being in academia is the time he gets to spend with students.

On April 11, Kurt Vonnegut died at the age of 84. He was an original and imaginative writer who embodied American counterculture and became an icon in American literature. His novels explored timeless questions about the human condition and the meaning of life. In *God Bless You, Mr. Rosewater* he wrote:

"Hello, babies. Welcome to Earth. It's hot in the summer and cold in the winter. It's round and wet and crowded. At the outside, babies, you've got about a hundred years here. There's only one rule that I know of, babies '...damn it, you've got to be kind."

On April 12 — after an intense national conversation on racial slurs, rap music, and freedom of speech — CBS News belatedly fired talk show "shock jock" Don Imus for his remarks toward Rutgers women basketball players. CBS CEO Leslie Moonves explained, "... in taking him off the air, I believe we take an important and necessary step not just in solving a unique problem, but in changing that culture, which extends far beyond the walls of our company."

The accidental juxtaposition of these events and the dissonance between the essential truth of Vonnegut's words and the thoughtless nature of Imus' remarks brought home to me the ineffectiveness of our national efforts to repair the fault lines that continue to divide our society along racial, gender, ethnic and economic dimensions — among others.

Engineering has been just as ineffective in overcoming the challenge of attracting minorities. There are scores of reports, studies, initiatives and programs addressing these problems. Despite sincere efforts, the lack of progress is truly disappointing.

I believe it will take a serious sustained commitment to attract more women and minorities into engineering. The underlying problems are deeply embedded in our society. They are exacerbated by the way we teach lower-division science and mathematics. Thus, the efforts will have to go beyond engineering education.

dedicated committed tenacious determined relentless passionate

Student Superlatives

Gators are winners — ask any Buckeye. Gator *Engineers* are no strangers to the winner's circle either, and here's the proof...

Benton Engineering Council

- Best Council at national conference

American Society of Chemical Engineers

- Best overall student chapter for southeastern region

American Society of Civil Engineers

- 1ST place in the concrete canoe regional competition
- 1ST place in the steel bridge regional competition
- Best Overall Chapter at regionals

American Society of Mechanical Engineers

- Hosted ASME Southeastern Conference

Environmental Engineering Design Team

- 1ST place in the national wastewater engineering design competition in Dallas in October.

Florida Engineering Society

- Most Active Florida Engineering Society Student Chapter (Summer 2006)

Institute of Electrical and Electronics Engineers

- Exemplary Student Branch Award
- 2ND place in regional software competition
- 2ND place in regional T-shirt competition
- 3RD place in regional ethics competition

National Society of Black Engineers

- Best Chapter in national conference

Society of Automotive Engineers

- 6TH place in the SAE formula car national competition — out of 106 participants

Society of Hispanic Professional Engineers

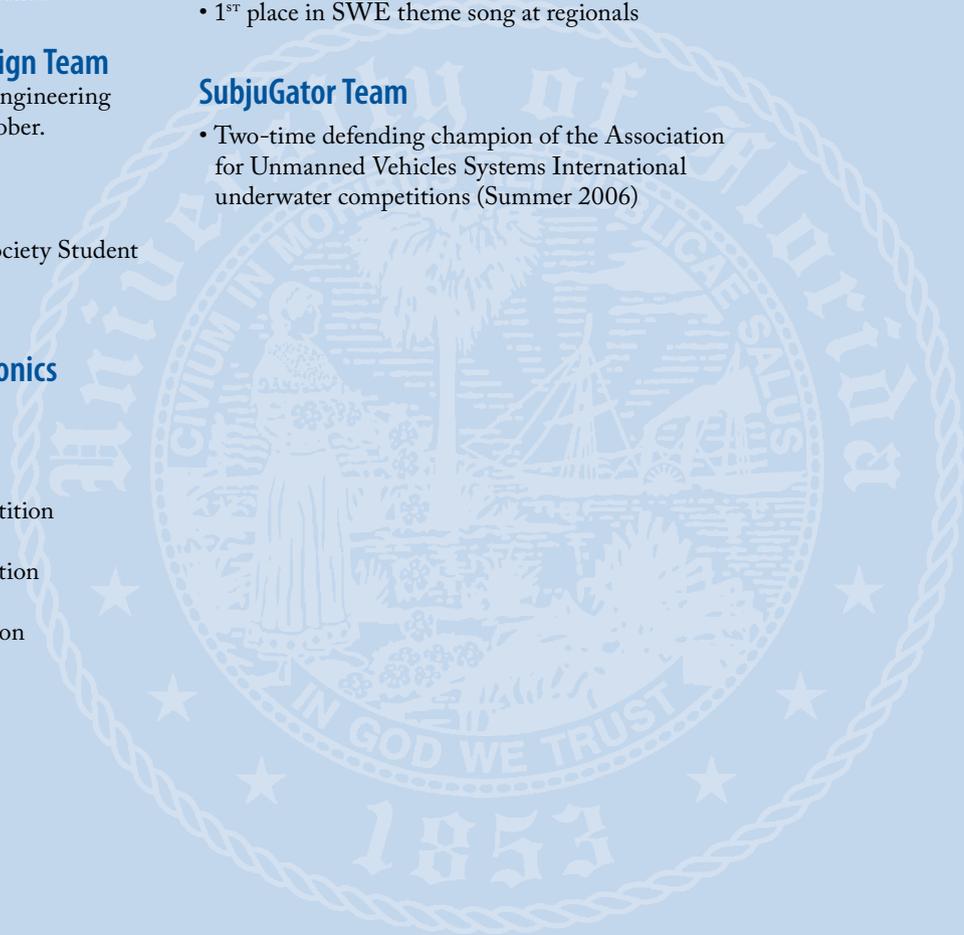
- Chapter of the Month for Region 7

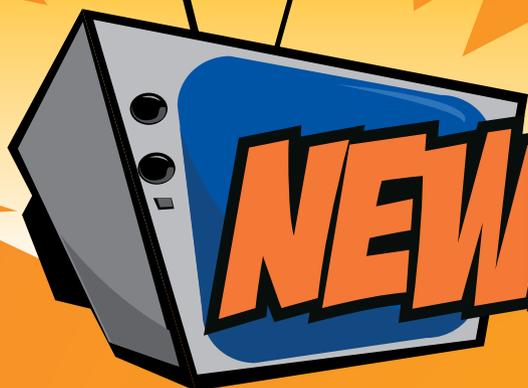
Society of Women Engineers

- 2ND place for best medium-size chapter
- 1ST place for best recruitment event (E-Swamp)
- 1ST place in SWE theme song at regionals

SubjuGator Team

- Two-time defending champion of the Association for Unmanned Vehicles Systems International underwater competitions (Summer 2006)





Gator Engineering is making headlines. See where we've been and what got us there.

From The Heart

The Gainesville Sun took notice of the amazing things happening at Gainesville Conductive Education Academy run by mechanical engineer James Klausner. The story appeared Jan. 14.

It's Good To Be Great

Folks from *The Anniston Star* in northeast Alabama came down to see just how UF produces top-notch athletes while maintaining superior academic programs. So, we showed them. This story ran Feb. 26.

Scootin' Along

The St. Petersburg Times featured soaking wet Gator Engineers. A team of students from mechanical engineering designed underwater scooters to help divers. This story ran March 5.

A Desert Drive

The Desert News of Salt Lake City knows a good research story when it happens. They featured Gator Engineering in an article about unmanned vehicles on April 1. No foolin'.

Looking Out For No. 1

Gator Engineering student Brett Swanson also happens to be part of that famous Gator Basketball team. *The Tampa Tribune* featured Swanson in a March 4 article.

Hot, Anyone?

When *The Houston Chronicle* needed an expert on the effects of global warming on beach erosion they called Bob Dean, professor emeritus in the Department of Civil & Coastal Engineering. The story ran on April 10.

You Put What Where?

What do *Science Daily*, *The Washington Post*, *Reuters South Africa*, *The Kansas City Star*, *News Wales*, *The San Francisco Chronicle*, *The Charlotte Observer*, *Forbes*, *The Wichita Eagle*, *The Cleveland Plain Dealer* and *The Monterey County Herald* have in common? They were all part of a publicity explosion in January focused on Gator Engineer Gabriel Bitton's research findings that if a WET* sponge is microwaved for two minutes, 99 percent of the bacteria is killed.

* Yep, that's right — the sponge **MUST** be wet, or it could catch on fire and make your microwave blow up.

It's Electrifying

The New York Times called and Gator Engineering's Martin A. Uman answered. His lightning research and testing center were the subject of a March 20 article about measurement of the nitrogen oxide gases produced by lightning.

Blowin' In The Wind

On the eve of the 2007 hurricane season, CNN broadcasted live from the College of Engineering's hurricane simulation site. Civil engineer Forrest Masters subjected a home to a simulated Category 3 storm to test building codes. *MIT Technology Review* also featured Masters' research on its Web site.

Rollin', Rollin', Rollin'

John D. Schert, executive director of UF's Hinkley Center for Solid & Hazardous Waste Management, was quoted in a May 11 article in *The New York Times* about the growing problem of highway debris on the nation's highways.

Go to www.thefloridaengineer.eng.ufl.edu for links to these stories.

Not So Scary After All

By Aaron Hoover

Since the nuclear unrest of the 1950s and 1960s much has changed in the field of nuclear science — including medical, energy and homeland security applications.



Photo by David Blankenship

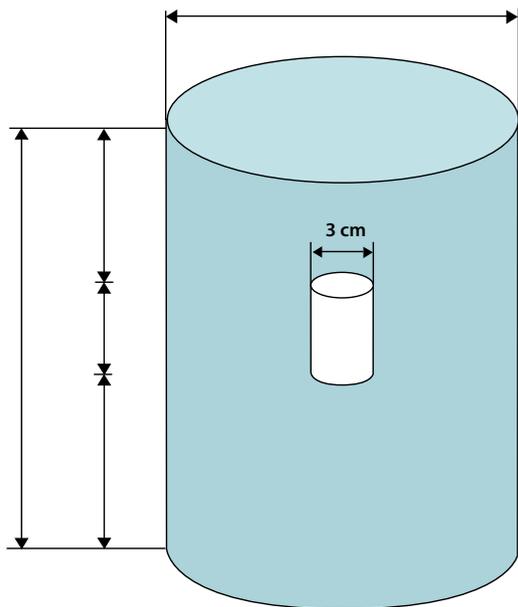
When it comes to combating terrorism on American soil, nuclear security officials face a daunting challenge.

They must inspect thousands of semi-trailer-sized containers passing daily through the nation's ports. Yet just one container could conceal enough nuclear material to kill tens of thousands of people and devastate a city.

Part of the challenge is detecting bomb-making material in the first place, especially if it is cleverly shielded. But the tougher puzzle may be sorting out harmful from benign sources of radiation. Weapons-grade plutonium gives off a signal that lights up radiation detectors. But so do bananas. And kitty litter. And dozens of other legitimate items routinely shipped on the world market.

2007: A Nuclear Odyssey

Alireza Haghighat in the control room of the UF Training Reactor. Soon the system will be renovated to be completely digital.



Warning — Very, Very Sensitive Material Enclosed

This shielded plutonium-beryllium neutron source makes high-energy neutrons from the 3-centimeter source look just like neutrons leaking from large masses of plutonium metal. This could replace Californium-252, an expensive and difficult-to-produce material now used to calibrate and test neutron-detection equipment.

Glenn Sjoden and his colleagues at the University of Florida Department of Nuclear & Radiological Engineering hope to help solve that problem — one made especially thorny by the need for the technology to work at the frenzied pace of modern commerce.

“What we’re trying to do is develop new methods that will provide smoking-gun indicators of the bad material,” said Sjoden, who joined UF as a professor four years ago after retiring as a nuclear research officer with the U.S. Air Force.

Nuclear energy may be the most obvious and best-known research focus in the Department, which was one of the first such departments in the Southeast and celebrates its 50th anniversary this year. With policy makers eyeing nuclear power as an ever-more-important electricity source

A nuclear renaissance

Not long ago nuclear energy — even the very term *nuclear* — carried with it a black mark. It was the aftereffect of the 1979 and 1986 accidents at Three Mile Island and Chernobyl, respectively. While those memories linger, nuclear technology is getting a fresh look today. That’s partly because nuclear energy plants appear to show promise of alleviating a looming electricity source that does not produce the global-warming gas carbon dioxide — unlike competing coal and natural gas.

But there’s also growing recognition that nuclear technology is critical for improving national security and fighting cancer — two top public priorities.

The changing climate has helped spur a renaissance for nuclear engineering at UF. In 2001, there were 39 undergraduate and 35 graduate students in nuclear engineering. In 2006, those numbers had grown to 115 and 79, respectively. In 2001, the Department netted about \$2.5 million in research awards. Its faculty capture

double that amount today. This spring, *U.S. News & World Report* ranked Gator Engineering

among the Top-10 nuclear engineering departments in the nation.

“Nuclear engineering appears to be critical to solving all the significant problems to mankind in the next 50 years,” said Department Chairman Alireza Haghghat. “Our goal is to play a role in helping to make that happen.”

The Department’s energy research is wide-ranging. Strengths include nuclear plant simulation and nuclear fuels, with Haghghat, professor Jim Tulenko and others managing projects in these areas. With several utilities gearing up to build plants in the next two decades — including Progress Energy, which plans a new plant near Crystal River — the research is particularly timely.

“We cannot afford to build reactors every day, so when we do build them we want to already know exactly what we’re going to get,” Haghghat said. “We can do that through simulation. On the computation side, we are very strong.”

Improving the nuclear shield

Another timely area of research in the Department is nuclear security, with Sjoden leading efforts as associate director of the Florida Institute of Nuclear Detection and Security. Created four years ago by the Florida Legislature, the institute’s mission is to improve nuclear security in the fight against terrorism.

As an Air Force officer, Sjoden specialized in monitoring the nuclear activities of countries participating in nuclear test ban treaties. He could have landed a higher paying job in industry after retirement, but he came to UF because he said he felt educating the next generation of nuclear engineers is important. He also wanted to work with Haghghat — a friend for decades, and his dissertation adviser at Pennsylvania State University.

With the institute established shortly after he arrived, Sjoden quickly drew on his background to step up UF’s nuclear security research. Today

“Nuclear engineering appears to be critical to solving all the significant problems to mankind in the next 50 years. Our goal is to play a role in helping to make that happen.”

due to declining fossil fuels and global warming, there’s no question nuclear research is central. But it is far from the Department’s only focus. The 12 full-time faculty and nearly 80 graduate students in the Department also have dozens of projects centered on nuclear security, nuclear medicine and space research — and they are making important contributions in each area.



Photo by David Blankenship

he and colleagues such as assistant professor Jim Baciak have about 10 projects funded by agencies including the National Nuclear Security Administration and the Department of Homeland Security.

Several efforts focus on the problem of detecting hidden nuclear materials in shipping containers by drawing on the Department's strengths in computer simulation.

It is possible to design and build new radiation detector technology using real radioactive material to produce telltale signals. But Sjoden said researchers can save enormous amounts of time and money by simulating those signals. A graduate student recently succeeded in one such effort, centered around a 1-inch capsule of plutonium-beryllium the Department has owned since the 1970s.

Using computer modeling, the student found a way to transform the signal from the capsule — which cannot be used to make a nuclear weapon — into a signal matching that of plutonium, which *can* be used for a weapon.

“He designed a shield that transforms that signature into something that looks like a weapons signature,” Sjoden said.

UF and other researchers can use the signal to research better detection technology without any dangerous and highly controlled weapons material.

In a separate project, another student under Sjoden's supervision crafted a computer algorithm, or specific set of computer instructions, to make handheld radiation detectors more effective. Sjoden said the problem with the current detectors is sometimes they don't separate multiple sources of radiation. The algorithm shows early promise of making the

handheld detectors more sensitive to multiple radiation sources in a single container.

“It only takes one to get through to cause very large problems and a significant impact on our country,” Sjoden said. “So anything we can do to make the detection process more effective is welcome, especially if we can do something that is widely used out there.”

The future of medicine

Department researchers are working toward a similar public impact in another area — nuclear medicine.

One long-standing project is to determine the most effective doses of radiation during therapy — doses that differ based on the size, weight and age of different patients. Children are much more sensitive to radiation exposure than adults, so those doses have to be scrutinized and carefully

The Fantastic Four

From left — Glenn Sjoden, Gabriel Ghita, Scottie Walker and Jim Baciak stand with a neutron- detection apparatus, part of sponsored research for the Department of Energy's National Nuclear Security Administration.



The Phantom Baby

It's not spooky — it's useful. David Hintenlang uses this patient, a pediatric "phantom," to teach graduate students about medical imaging. The phantom contains simulated organs that can be detected by X-ray or other imaging methods.

kept in check. This research is being done by nuclear engineering professor Wes Bolch and associate professor David Hintenlang.

But education is also key to the Department's nuclear medicine initiatives. A prominent example is the Department's graduate program in medical physics. The program — the only such accredited program within an engineering department in the nation — trains graduate students to operate the machines used in radiation oncology in hospitals. Demand for graduates is extremely high, with the nearly 40 master's-level students in the program commanding six-figure salaries upon joining the workforce as *physicists*, the hospital term for the position.

Haghighat created a doctoral track — computational medical physics — aimed at producing innovators in the field.

"We are basically training people who can design new devices and program new algorithms," he said. "And that's really where I see our major contribution in this discipline."

A more advanced reactor

In space research, meanwhile, professor Samim Anghaie is working on long-term efforts to tap nuclear power for new space propulsion systems. The technology has potential for use in the first manned mission to Mars.

Whether researchers are focusing on security, space, energy or health, they have a unique resource at their disposal — a tiny nuclear reactor. The only such training reactor south of North Carolina, Gator Engineering's reactor was the first in Florida, built in 1959. Last year, it became the second research reactor in the U.S. to convert from using highly enriched uranium to low-enriched uranium fuel under the Global Threat Reduction Initiative, a program aimed at reducing the presence of harmful nuclear material.

Haghighat said that although the reactor was heavily used in its early decades, it has not reached its full potential in recent years. One of his main goals is to completely revamp the reactor, making it a University-wide research facility.

Progress Energy donated \$425,000 — money that was matched by the state — to renovate the reactor's control system. Haghighat's goal is to make the control system the first in the country to be completely digital, which he said would make it a good testing facility for new nuclear power plants. He also wants to broaden the reactor's capabilities to make it useful for a wider range of researchers.

"We want to build different types of experimental applications at each port. So we can actually bring in users, both within the University and outside," Haghighat said. "So basically, we will have a really advanced, modern facility." 



Winging It

By Andrew Stanfill

Doctoral student Mujahid Abdulrahim studies wings — both feathered and mechanical.

Mujahid Abdulrahim was certain cars were better than planes. As a fifth-grader, he even argued about it with his teacher's husband.

When he was 12, Abdulrahim was on an airplane when he was invited to meet the pilot. A new world opened up. The pilot drew a wing on a notepad and explained how the plane is carried into the sky. Abdulrahim was hooked.

In seventh grade he joined the model plane club and was fascinated by building planes.

A poster in his Panama City, Fla., eighth-grade algebra class showed how math can be used in different careers. It gave a name to the career that would combine his love of flight and mathematics.

"There was one that had just about all the stars filled in," he said. "That was *aeronautical engineer*."

After a high-school visit to UF, Abdulrahim's future as a Gator Engineer was cemented. While waiting in Criser Hall for his brother to register for classes, Abdulrahim read an article about micro air vehicles in the spring 1998 issue of *Explore*, UF's research magazine.

It detailed the innovations of the program and also some of the troubles in designing the vehicles.

Flying High

Mujahid Abdulrahim's camera is like Ellen DeGeneres' American Express card — he never leaves home without it. During this photo shoot he stopped mid-shutter to take a picture of a bird flying overhead. Birds are the primary inspiration for his research.

Photo by Andrew Stanfill



Mr. Abdulrahim Goes To Washington

From left — Daniel Grant, Rick Lind and Mujahid Abdulrahim. Abdulrahim said the visit gave him a new appreciation for how money flows from the national level to the colleges. He said he got to meet with the people who controlled the “purse strings” of research.

More Than Planes

Abdulrahim isn't a one-trick pony. In his spare time, he's also an avid photographer.

After a trip to visit relatives in Syria last summer, Abdulrahim shared his photographs in the Reitz Union Gallery.

But he almost didn't bring his camera along — he was afraid of security troubles and getting it lost or stolen while traveling. Eventually, though, he talked himself into bringing it, he said.

“I realized this was probably going to be the most epic opportunity to photograph Syria,” Abdulrahim said.

This challenged Abdulrahim to focus on the small unmanned aerial vehicles for his senior-year high-school science project.

Abdulrahim had recently taken up golfing. Like most new golfers, he wasn't very good.

“Most of my tee shots would start out straight and rapidly diverge to the right in a glorious curving flight,” he said.

The engineer in him led him to break down how different strokes affected the side spin and flight of golf balls.

Abdulrahim said he also practiced spinning yardsticks while throwing them, and found he could generate lift from an otherwise non-lifting device. So he applied what he learned from the golf balls to micro air vehicles and added lift-producing rotating cylinders to the wings.

The cylinders created lift the same way a golf ball does, by spinning. While rotating cylinders had been used before, the novelty was applying them to micro air vehicles, he said.

As he worked on his project, he began to e-mail UF faculty involved in research for the small vehicles. They invited Abdulrahim to bring his project to a convention in Archer, Fla.

Seeing Abdulrahim's work and enthusiasm for the subject, mechanical and aerospace engineer Peter Ifju invited him to UF to work with the micro air vehicle team.

“The first thing Dr. Ifju told me to do was to try to build an airplane with anything in the lab at my disposal,” Abdulrahim said.

Few words could have sounded sweeter.

From that first plane he built, he has moved toward one goal — perfection. When he finishes a project, Abdulrahim forms a hypothesis for why his design didn't work as planned.

“That's my dream,” he said. “To embody the scientific method in my work.”

He's now working on his Ph.D., and the classes he takes directly relate to his interests, he said.

“That's the joy of being a grad student,” Abdulrahim said. “As soon as I learn something in class, I implement it in the lab.”

Observing the way birds fly, Abdulrahim wondered how he could make the MAVs move with the same grace and ease. He began to study their movement. It was from watching birds that his unique gull-wing design was born in 2003. The wings morph from one shape to another depending on how the plane is flying. It's similar to the way a gull moves from gliding to diving, he said.

His design impressed the Science Coalition, a national lobbying group. It selected the gull-wing MAV as one of 15 university research projects to present to Congress.

In January Abdulrahim went to Washington, D.C., with professor Rick Lind and engineering student Daniel Grant. They presented their work in the Rayburn House Office Building. Everyone who saw the project viewed it in his or her own way, he said.

Environmentalists saw its morphing wings beating other designs for the best fuel economy. The military-minded saw it changing how small vehicles navigate the battlefield. Others just wanted to see what the government was funding.

With his graduation at the end of the summer, Abdulrahim knows what he wants to do with his future. He took a job in private industry and intends to one day become a professor specializing in MAV research. 



A Capitol Idea

By Steve Orlando

Photo by Kristen Bartlett Grace

Put simply, Gator Day in Tallahassee is the University of Florida's annual chance to show off in the state Capitol and make its case for more funding.

Every state university gets its own day, but UF is known for pulling out all the stops. This year was no exception. A pair of national championships in football and basketball earlier in the year made the point in bold relief. So did the guest of honor: UF alumnus Bob Vila, the nationally known home-improvement television guru.

Planning for Gator Day starts months in advance, so when the idea popped up just a few days before the event to have the Department of Civil & Coastal Engineering's award-winning steel bridge team demonstrate what it does best — building a span in less than five minutes — concerns naturally cropped up.

Could they get the bridge components into the security-bound Capitol building? *No way.* Would the room be

The Gator Engineering steel bridge team wows a crowd of big-name Gators — including home-improvement icon Bob Vila.

big enough? *Not a chance.* Would they be able to do it in the allotted time? *Can't be done.*

Here's a take-home lesson: Never tell an engineer it can't be done.

When I stepped out of the elevator onto the Capitol's 22nd floor just before 5 p.m. for the Gator Day reception, there stood the smiling team ready for action, the bridge parts neatly stationed at either end of the long room waiting to be assembled. The 22nd floor is an observation deck surrounded by spacious windows overlooking downtown Tallahassee and the countryside beyond. Looming to the west like Darth Vader's Death Star was the campus of Florida State University.

Talk about motivation.

The 150-plus crowd squeezed to the edges of the room, and the team prepared for launch. On a shouted signal, the game was on.

Like a NASCAR pit crew, the team swiftly got down to business. Wrenches spun. Mallets banged. Ratchets clattered. The jazz band on hand for the reception laid down a drum roll as Alachua County Commissioner Rodney Long led the audience in cheers of "Orange!" and "Blue!" from either side of the room. Sure enough, less than five minutes later the deed was complete, and the audience roared its approval. UF President Bernie Machen congratulated the team for a job well done, and a clearly impressed Vila presented each member with a set of Vila's own line of tools.

Can't be done? Yeah, right. What else ya got? 🐾

Getting To Know Them ... all about them

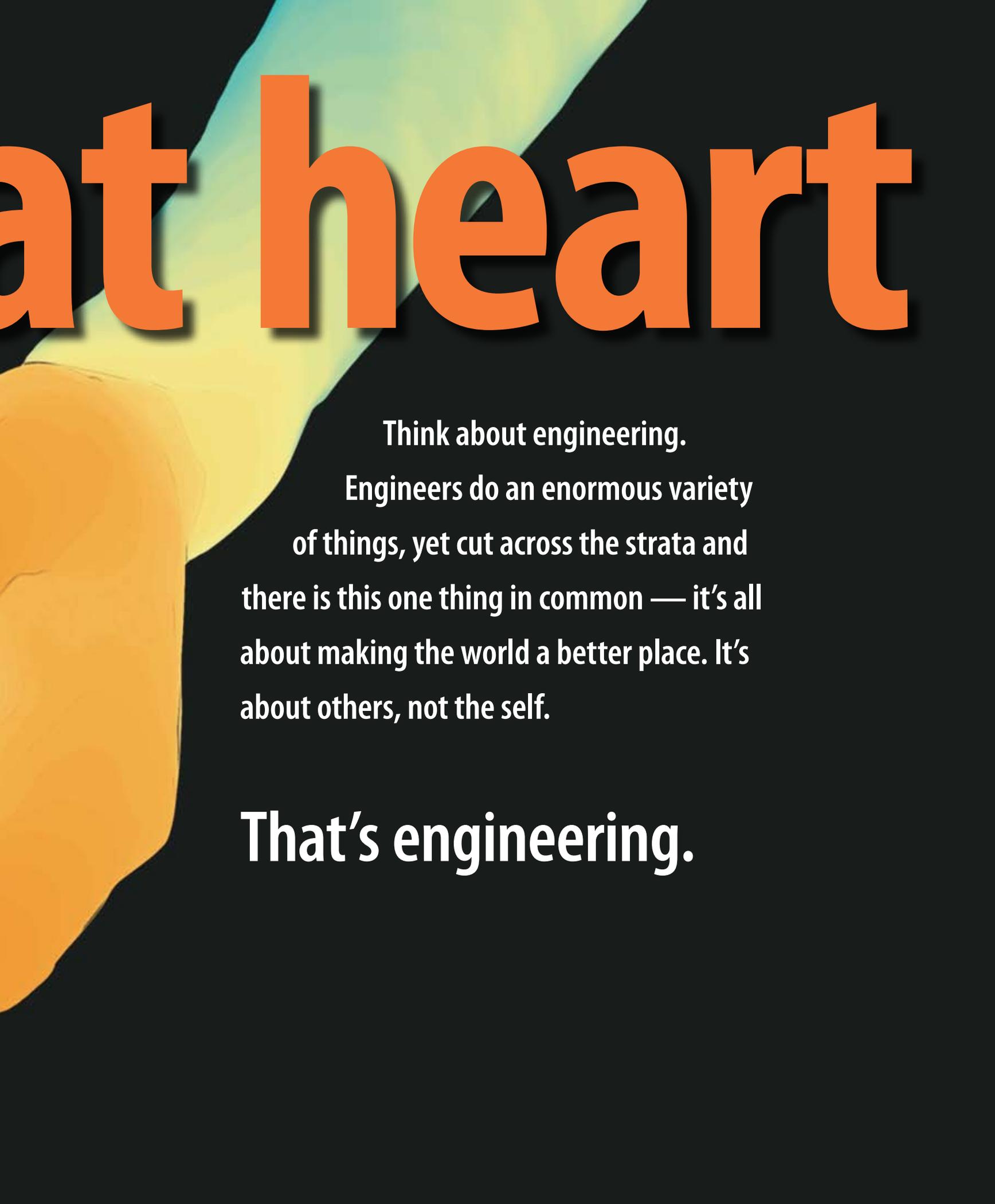
So, who are these people running your alma mater? Sure you might recognize their names, but do you really *know* them? Well, we were interested — so, we threw job security out the window and got down to business. We think you'll like what we found.

	NAME	ALMA MATER	IF NOT AN ENGINEER, WHAT?	DIRTY LITTLE SECRET
	Pramod Prabhakar Khargonekar <i>Dean of the College of Engineering & Eckis Professor of Electrical & Computer Engineering</i>	Ph.D., 1981 University of Florida	Philosopher	As a Gator Engineering grad student, Khargonekar never stayed in one apartment for more than a year — and he lost his deposit every time. He said the apartments got so out of shape it was more convenient to forfeit the deposit than spend the effort to clean up.
	Timothy J. Anderson <i>Associate Dean for Research and Graduate Programs & Professor of Chemical Engineering</i>	Ph.D., 1980 University of California, Berkeley	International man of mystery	Anderson is classified. He is but we still know the pineapple agreement. Representative from the Taliban government stated denied the re-vest.
	Cammy Renee Abernathy <i>Associate Dean for Academic Affairs & Professor of Materials Science & Engineering</i>	Ph.D., 1985 Stanford	Venture capitalist	Some people will do anything for cash — especially hungry college students. Abernathy admitted she earned \$2 a day as a test subject while she was an undergraduate at MIT. For an entire semester, she ate what smelled like — and she <i>thinks</i> tasted like — dog food.
	Jonathan Franklin Kipling Earle <i>Associate Dean for Student Affairs & Associate Professor of Agricultural & Biological Engineering</i>	Ph.D., 1985 University of Florida	Doctor	When Earle applied to the College of Engineering, he also applied to medical school. He wasn't completely sure which educational endeavor to pursue, but when he got a full ride in engineering, his decision was made. A few weeks later, he got a full scholarship to medical school too. Good thing Gator Engineering is on the ball and gets those acceptance letters in the mail fast.
	Dorota Haman <i>Chair of Agricultural & Biological Engineering</i>	Ph.D., 1984 Michigan State University	Architect	Haman gets up around 4 a.m. and skips around her house for exercise. Her exercise coach told her that skipping is the best exercise.
	William Lincoln Ditto <i>Chair of J.Crayton Pruitt Family Department of Biomedical Engineering</i>	Ph.D., 1985 Clemson University	Filmmaker	Ditto once moved a Hammond B-3 organ across downtown Los Angeles for Joan Baez in a five-speed truck that he didn't know how to drive. "I heard the thing banging around the whole time — as soon as I dropped it off, I got out of there."
	Jennifer Sinclair Curtis <i>Chair of Chemical Engineering</i>	Ph.D., 1989 Princeton University	CEO of Fortune Top-10 Company	Coffee, tea? Curtis will take tea because her intern days as a Folgers coffee taste-tester are long gone.

	NAME	ALMA MATER	IF NOT AN ENGINEER, WHAT?	DIRTY LITTLE SECRET
	Joseph William Tedesco <i>Chair of Civil & Coastal Engineering</i>	Ph.D., 1982 Lehigh University	Explosive ordnance disposer for the U.S. Military	Probably the dirtiest little secret of all. While an undergrad at Notre Dame, Tedesco spent one summer vacation working as a garbage man in Martha's Vineyard.
	Sartaj Sahni <i>Chair of Computer & Information Sciences Engineering</i>	Ph.D., 1973 Cornell University	U.S. Army officer	Sahni went to Cornell intending to do just a master's in computer science. But, he ended up doing a Ph.D. because he found out that master's degrees were given to people who couldn't make it in the Ph.D. program.
	Mark Edward Law <i>Chair of Electrical & Computer Engineering</i>	Ph.D., 1988 Stanford University	Lawyer	Not so dirty — but fun. Law plays bluegrass music on the weekends. He plays the fiddle and the guitar in his family's band.
	James Patrick Heaney <i>Chair of Environmental Engineering Sciences</i>	Ph.D., 1968 Northwestern University	Chicago Cubs right fielder	Heaney has beaten UF's parking system. Where is this perfect spot? "I would tell you, but then I would have to kill you."
	Joseph Christopher Hartman <i>Chair of Industrial & Systems Engineering</i>	Ph.D., 1996 Georgia Tech	Marine biologist	You know that – ahem – very serious textbook by Hartman? <i>Engineering Economy and the Decision-Making Process...</i> Well, it was half-written in a fabulously dark, old pub in Edinburgh, Scotland. Pint anyone?
	Kevin Scott Jones <i>Chair of Materials Science & Engineering</i>	Ph.D., 1987 University of California Berkeley	Wildlife photographer or manager of an organic fruit farm	If you wake up one morning and notice the bags of leaves you raked the day before are gone — and it's not your yard waste pick-up day — there's a fair chance Jones is the culprit. He drives around in his truck stealing leaves for the compost bins he maintains to fertilize his many fruit trees.
	Sivaramakrishnam "Bala" Balachandar <i>Chair of Mechanical & Aerospace Engineering</i>	Ph.D., 1988 Brown University	World-traveling archaeologist	He thinks he's real funny — and he is. Go to the Web site to see Bala's stab at comedy. www.thefloridaengineer.eng.ufl.edu
	Alireza Haghigat <i>Chair of Nuclear & Radiological Engineering</i>	Ph.D., 1986 University of Washington	A sports caster, coach, or professional athlete	He's a shark — well, he used to be. Haghigat used to use his early graying coif to hustle college kids into playing him in basketball.

heroes a





at heart

Think about engineering.

Engineers do an enormous variety of things, yet cut across the strata and there is this one thing in common — it's all about making the world a better place. It's about others, not the self.

That's engineering.

heroes at heart

Taking it out of the Classroom

Engineers Without Borders at UF



Most Americans take garbage for granted. A truck pulls up, empties a bin and hauls the trash to a landfill.

UF's chapter of Engineers Without Borders, a non-profit humanitarian organization helping developing communities, started in 2005 when it traveled to Kratovo, Macedonia, to design a system for garbage collection and disposal.

Macedonia has been independent since 1991, and is still organizing itself — a task complicated by poverty. In Kratovo, residents weren't aware of risks of environmental contamination, UF's Engineers Without Borders faculty adviser Angela Lindner said.

"As a result, trash was piling up just about everywhere in the city, even in the river. They didn't realize how dangerous it was," she said.

Gator Engineers are focusing on collaboration to share the engineering and design know-how to keep the system functioning once they depart. The UF team designed educational materials for children and teens so they can take over stewardship of their community.

UF's student engineers are getting more than a valuable education, too, as they hone their engineering skills.

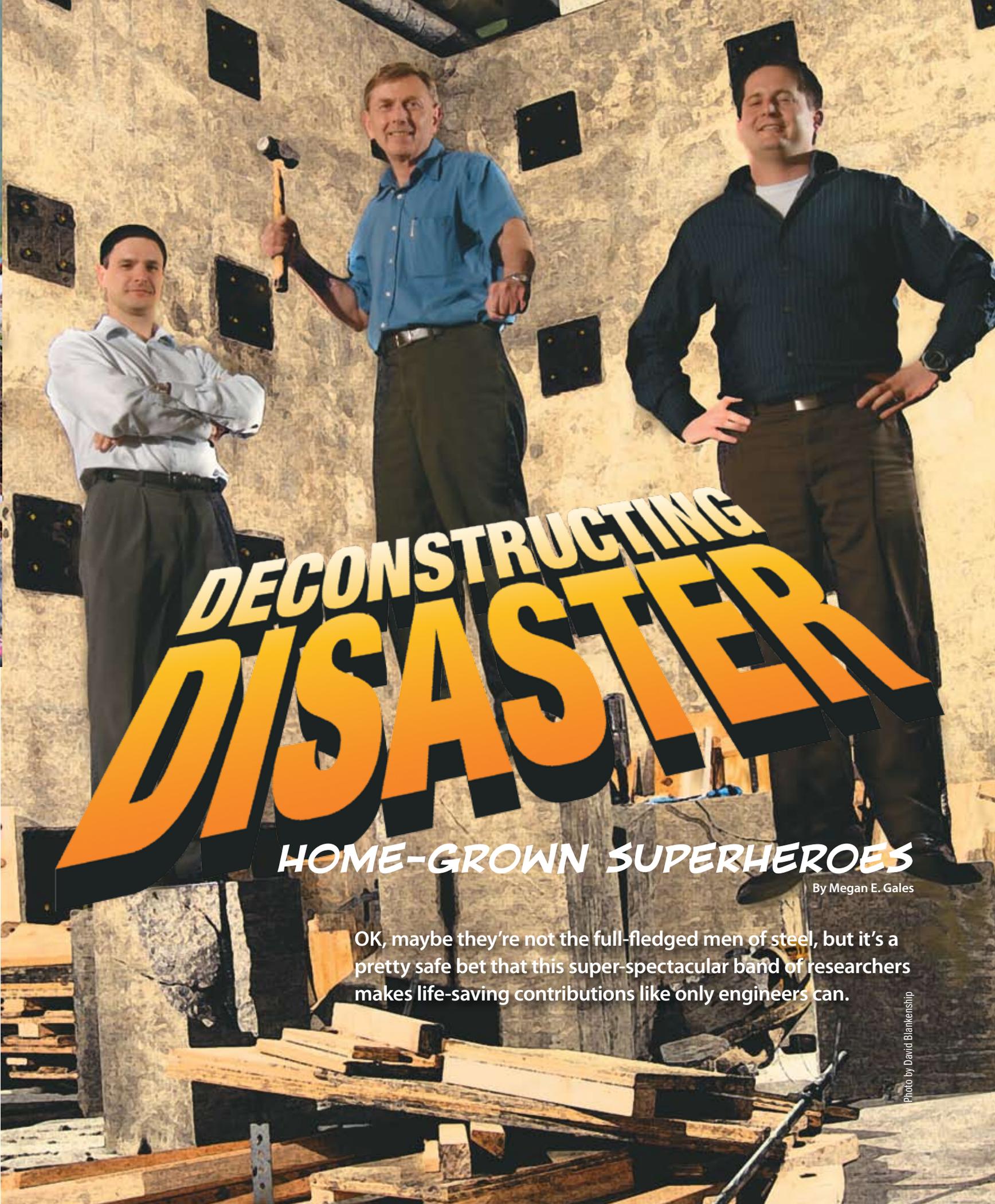
"The lives of our students and mentors are enriched, perhaps more so than those in their target communities," Lindner said. "Rarely are these lessons of the heart learned in traditional engineering design courses as they are in our EWB projects, which must involve an awareness of the economic, environmental, and social impacts of their designs."

In New Orleans, EWB is experimenting with ways to recycle used latex paint in the wake Hurricane Katrina's reconstruction boom, which is generating huge amounts of paint waste. In Cambodia, students are working on a pump system for crop irrigation. That project has benefits that go beyond agriculture, Lindner said. Fetching water for irrigation is primarily done by girls and women. Once that's automated, the girls can go to school. There's also an economic boost, since UF engineers are focusing on using materials that can be obtained in Cambodia.

"Once you set foot in a developing community, the collaboration never ends," Lindner said. "It's a holistic approach to engineering. I cannot imagine any more fulfilling work on campus than mentoring our students in engineering principles and, in turn, giving back to those in need." 

inspired?

Contact Rebecca Hoover for more information.
352.392.6795
bhoov@eng.ufl.edu



DECONSTRUCTING **DISASTER**

HOME-GROWN SUPERHEROES

By Megan E. Gales

OK, maybe they're not the full-fledged men of steel, but it's a pretty safe bet that this super-spectacular band of researchers makes life-saving contributions like only engineers can.

Photo by David Blankenship

heroes at heart



THE WIND WIZARD

AKA Forrest Masters

Day Job: Assistant professor of civil and coastal engineering

Powers: Summons the ferocity of a hurricane; uses uncanny abilities to observe storms to build safer structures



THE ENFORCER

AKA Ron Cook

Day Job: Professor of civil and coastal engineering

Powers: Takes wind destruction and turns the damage into better laws



THE FLYING CARTOGRAPHER

AKA Ramesh L. Shrestha

Day Job: Professor of civil and coastal engineering, Director of NSF-supported National Center for Airborne Laser Mapping, Director of the GEM Research Center

Powers: Shoots laser beams from an airplane to map of any areas of mass devastation.



THE SURGE SHIELD

AKA Peter Sheng

Day Job: Professor of civil and coastal engineering

Powers: Weaves hurricane wind forecasts into predictions to help save people from deadly storm surges, which are responsible for 90 percent of hurricane-related deaths.

DECONSTRUCTING DISASTER

When pregnant clouds loom and violent winds swirl, researchers at the University of Florida come alive. They fill several Ford F-250s with a week's rations and head out to meet disaster head-on.

Civil engineer Forrest Masters (Ph.D. CE '04) leads the eight-truck convoy.

"If you're going to work with disaster, you have to be willing to — in our case — intercept it," Masters said.

The UF team does what no other research group can — it plants itself in the path of mass destruction and studies it from a unique perspective. Masters is part of an unprecedented research group that includes an impressive array of hurricane experts and blast researchers.

Many of the principles that apply to building a structure to hold up to a hurricane are also

relevant in the context of human-devised threats, Masters said. Gator Engineers are combining forces to find those common elements.

"By having different hazard researchers working in the same place, it's opened up the opportunity to produce a more holistic approach to design and investigate the multi-hazard approach," Masters said.

The hurricane group — the Florida Coastal Monitoring Program — takes a team of researchers and students out to greet major storms within driving distance. They select only the most significant storms to study. Pulling 6,000-pound trailers and other equipment, it costs about \$3 a mile for the trucks to travel. The team packs a stash of non-perishable sustenance — though Masters admits the rest of the researchers no longer bring Chex Mix because he repeatedly stole every crumb in sight. With 40 gallons of fuel in the tank and 100 gallons in

reserve, the team eagerly faces the same harsh conditions that make the locals evacuate.

Weather observations are usually hard to come by during a hurricane, Masters said. Most current equipment is vulnerable to power outages.

But Gator Engineering's trademark 33-foot-tall orange hurricane towers are self-powered for about three days. Weighing in at 5,500 pounds, the steel-lattice towers are built to withstand wind gusts up to 200 miles per hour. A series of 20-foot-long legs that pivot out from each tower's base and large screws driven into the ground — similar to those used to secure manufactured homes — add stability. The instruments attached to the towers are equally strong and collect information about wind speed, barometric pressure, temperature, relative humidity and rainfall. Two onboard computers record the data at 15-minute intervals. They use cell-phone modems and the GOES East satellite to upload — in real-time — observations to a Web site. Meteorologists at the National Oceanic & Atmospheric



THE EXTINGUISHER

AKA Gary Consolazio

Day Job: Associate professor of civil and coastal engineering

Powers: Jumps into the middle of extreme structure collapse and figures out what went wrong

Administration access it and use the information to build storm projections.

Masters, who worked with the group as a UF undergraduate and graduate student, said experience, the Internet and NOAA meteorologists keep the team safe on the road. He's deployed — as he describes it — for nearly 20 hurricanes in the last several years.

"I have a very comfortable sense of when we should be working and when we shouldn't," Masters said. "I know when it's time to leave."

The trucks have an Internet connection that lets the team keep a close watch on the weather radar. Experts at NOAA — guardian angels, as Masters nicknamed them — stay in constant communication with the team. If the storm changes direction or gets stronger, for example, the meteorologists warn Masters' group.

"They tell us to get the hell out. It's happened on more than one occasion," Masters said. "And we do."



Photo by David Blankenship

After the winds have settled and plywood no longer adorns the windows, the FCMP sets up camp again — this time not in a cramped hotel room, and not in the cab of an oversized pickup truck, but in a Gator Engineering lab.

Masters is building a massive hurricane simulator. Four 700-horsepower Detroit diesel engines intended for marine use power eight 5-foot vane-axial fans through a hydraulic drive-unit system. With a little water in the right place, Masters can even make it rain.

It creates hurricane-force wind across a 10-foot square. And it's mounted on a dump-truck-like trailer, so it can be turned on its side to create lower wind speeds across a larger area. That's helpful for watching how trees react in extreme conditions, Masters said.

When engineers can watch the way the wind blows, they can design homes accordingly.

"We're not necessarily trying to build structures stronger — we're trying to build them smarter," Masters said.

Hurricanes have long been a part of life for Masters, a 13th-generation Floridian who traces his lineage back to the settlers of St. Augustine. One of his earliest memories is evacuating from Anastasia Island with his family during the summer of 1979 while Hurricane David threatened the area.

"If you're going to work with disaster, you have to be willing to — in our case — intercept it."

Several dozen homeowners along Florida's coast volunteer their houses as research subjects. FCMP retrofits each house according to modern building-code standards. Before a big storm, researchers attach sensors to each home. The instruments feed measurements to a computer encased in a locked metal box with a battery backup outside the home. This authentic set of information represents real homes during real conditions.

heroes at heart



THE CYCLO-CODER

AKA Kurt Gurley
Day Job: Associate professor of civil and coastal engineering

Powers: Commands computer code to blast virtual homes, testing improvements that would defend them from a devastating hurricane



THE TUNNEL MASTER

AKA David O. Prevatt
Day Job: Associate professor of civil and coastal engineering

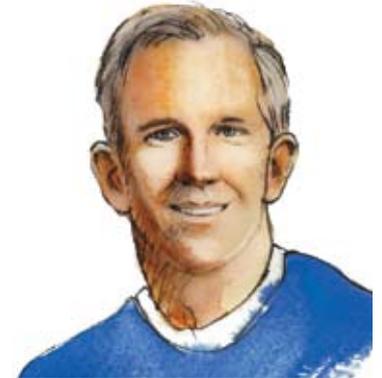
Powers: Conjures hurricane-force winds in massive tunnels filled with miniature homes to learn how to make homes safer



THE SEDIMENT SLEUTH

AKA Donald Slinn
Day Job: Associate Professor of civil and coastal engineering

Powers: Detects beach erosion while using numerical simulation to protect the coast from storm surge, internal waves and turbulent mixing.



THE TENSION TORMENTOR

AKA Trey Hamilton
Day Job: Associate professor of civil and coastal engineering

Powers: Makes buildings stand up to their job

DECONSTRUCTING DISASTER

Back in the lab, FCMP uses the sensors' readings — often with information gathered from the portable hurricane towers — to quantify wind damage.

Civil engineer Kurt Gurley is one of the nation's leading hurricane experts. His specialty is creating computerized models of homes. Another researcher builds a model hurricane, which Gurley uses to subject his digital dwellings to a violent gust of code. These experiments show which basic home improvements — a stronger roof or impact-resistant windows, for example — will have the most impact on a certain kind of home.

"It's pretty easy for an engineer on a piece of paper to sit down and design a house that is very hurricane-wind-resistant. That's easy to do if you're

not worried about cost," Gurley said. "So the thrust of our research has always been cost-effective mitigation measures."

The results of his simulations are remarkably accurate projections of hurricane damage — and the effect of rudimentary retrofits — on residential homes of all kinds and ages.

Ultimately, the information translates to better building codes — and more affordable home insurance.

Between Masters' full-scale research and Gurley's computerized approach is associate professor David Prevatt's wind tunnel.

Prevatt is new to Gator Engineering — dust hasn't had the chance to settle on his desk — but he proved himself as a passionate researcher a long time ago. He builds scale models of homes for his wind-tunnel experiments. He drills hundreds of holes in the models and inserts small tubes. The tubes run to a device that measures the fluctuating pressure.

Prevatt's previous experiments have been at about a 1 to 50 scale. At UF, though, he hopes to build one of the largest wind tunnels in North America. The bigger the model, the more accurate the measurements. Everything about a scale model can be downsized proportionately — except the size of an air molecule.

Every now and then, researchers get to play with the real thing. The state of Florida occasionally lets the group use a house that's vacant and about to be demolished. Towers and instruments teach researchers about wind and how houses react to the wind. Experimenting with a home itself, though, offers a whole new perspective.

The team uses a crane to pull at the roof in a manner similar to hurricane winds. They note the force required to do some damage, and use mathematical formulas to translate those numbers into wind speed capable of the same. They usually bring a building contractor on-site, Gurley said, to help determine the most cost-effective retrofits. Then put in



THE BLAST

AKA Ted Krauthammer

Day Job: Goldsby Professor of civil engineering and Director of the Center for Infrastructure Protection and Physical Security

Powers: Super human command of geometry to thwart terrorist attacks and natural building-crushing disasters



some retrofits at a different part of the house, do the tests again, and compare the results.

“Ultimately we’re looking to keep our communities safer,” Masters said.

Next door to Masters is another engineer with the same goal.

Ted Krauthammer studies explosions. He makes buildings stronger — better able to withstand any kind of impact.

“We look at life as an effort to protect society against catastrophes,” said Krauthammer, a native of Israel. “Because if we cannot protect society against catastrophes, we can not ensure continuity of operations, continuity of business, quality of life and so on.”

His most effective weapon is the bane of many a 10th-grader’s existence: geometry.

“When one looks at a structure, the structure is composed of materials and shapes. These things define the structure,” Krauthammer said. “And like any engineering problem, the engineer needs to work with the

materials available and the space available to create the shapes that can enable the structure to do what it’s supposed to do.”

When Flight 77 crashed into the Pentagon, geometry saved lives.

Krauthammer worked on a team that renovated the Pentagon. Part of the retrofits — near the impact site — were complete before Sept. 11, 2001. In the finished area, the building did not crumble, windows did not shatter, and people walked away unharmed. A hundred feet away from the impact in an area that had not been remodeled, people were injured.

Because he can’t study blasts as they happen, simulations are critical to Krauthammer. His second home — the newly completed Powell Family Structures & Materials Lab — includes a 14-foot-high pendulum capable of swinging weights up to 1,600 pounds and a drop hammer that can release a 7,000-pound-weight from as high as 23 feet. He’s planning to add a higher pendulum and two more drop hammers later this year. He records his experiments with blazingly

fast data acquisition equipment — capturing up to 2 million readings per second, per channel on 64 channels and up to 10,000 frames per second on video. Standard video equipment typically captures about 30 frames per second. Like Gurley, Krauthammer also uses computer models to project results of retrofits.

“By doing it this way, we can leverage technologies from one field to another,” Krauthammer said. “The issue is that these things have not been done this way before. What we are trying to do here is to look at a multi-hazard approach that is much more rational and much more cost effective to society.”

And this unique opportunity to collaborate is precisely what stood out to Krauthammer about UF.

“We know the differences that we can make to people’s lives and to society,” Krauthammer said. “We do things that are not just research reports or papers in journals — there are direct and immediate opportunities to apply these things to real life.” 

The Day the Earth Stood Still

Professor Ted Krauthammer helped to renovate the Pentagon to the immediate left of the crash site. When Flight 77 crashed into the Pentagon on Sept. 11, 2001, the value of the improvements was unmistakable.

heroes at heart

do it loud, do it proud

Some people do it at work. Some people do it in their spare time. Some people do it because they like it. Take a look at how these Gator Engineers are making the world a better place.



ECE DOES IT ON THANKSGIVING

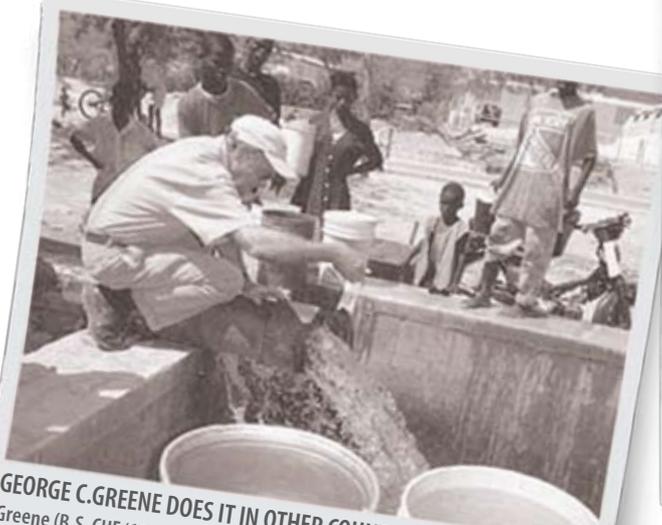
The faculty, staff and students of electrical and computer engineering have started an annual food drive to help feed Gainesville's hungry.

BARNEY CAPEHART



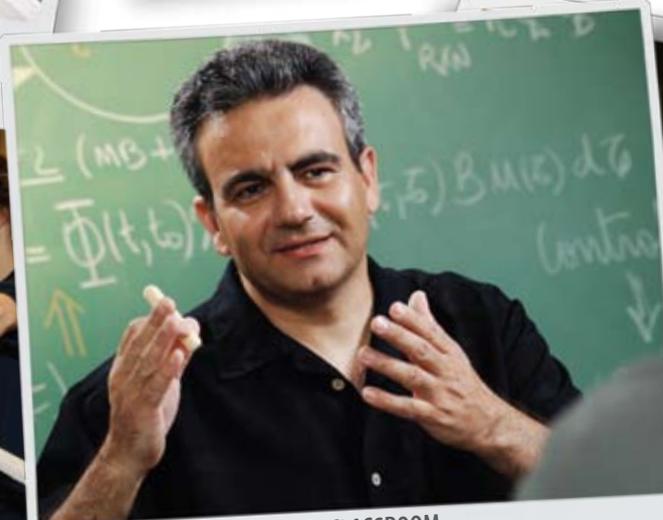
BARNEY CAPEHART DOES IT IN THE CAPITOL

You know those Energy Star stickers? It all started with an ISE Gator Engineer. Capehart was the force behind a Florida energy efficiency law passed 20 years ago this Fourth of July. The federal government caught on and soon revised national energy laws.



GEORGE C. GREENE DOES IT IN OTHER COUNTRIES

Greene (B.S. CHE '67) gave up job security in industry to engineer cleaner water for people who need it. He founded a non-profit organization called Water Missions International.



OSCAR CRISALLE DOES IT IN HIS CLASSROOM

This year was the second time chemical engineer Oscar Crisalle was named the College's teacher of the year.



MIKE FUNK DOES IT FOR HIS STUDENTS

Funk is this year's engineering adviser of the year. His students say they appreciate his open door and hard work on their behalf.



KATHARINE WYSOCKI DOES IT WITH LIQUID NITROGEN

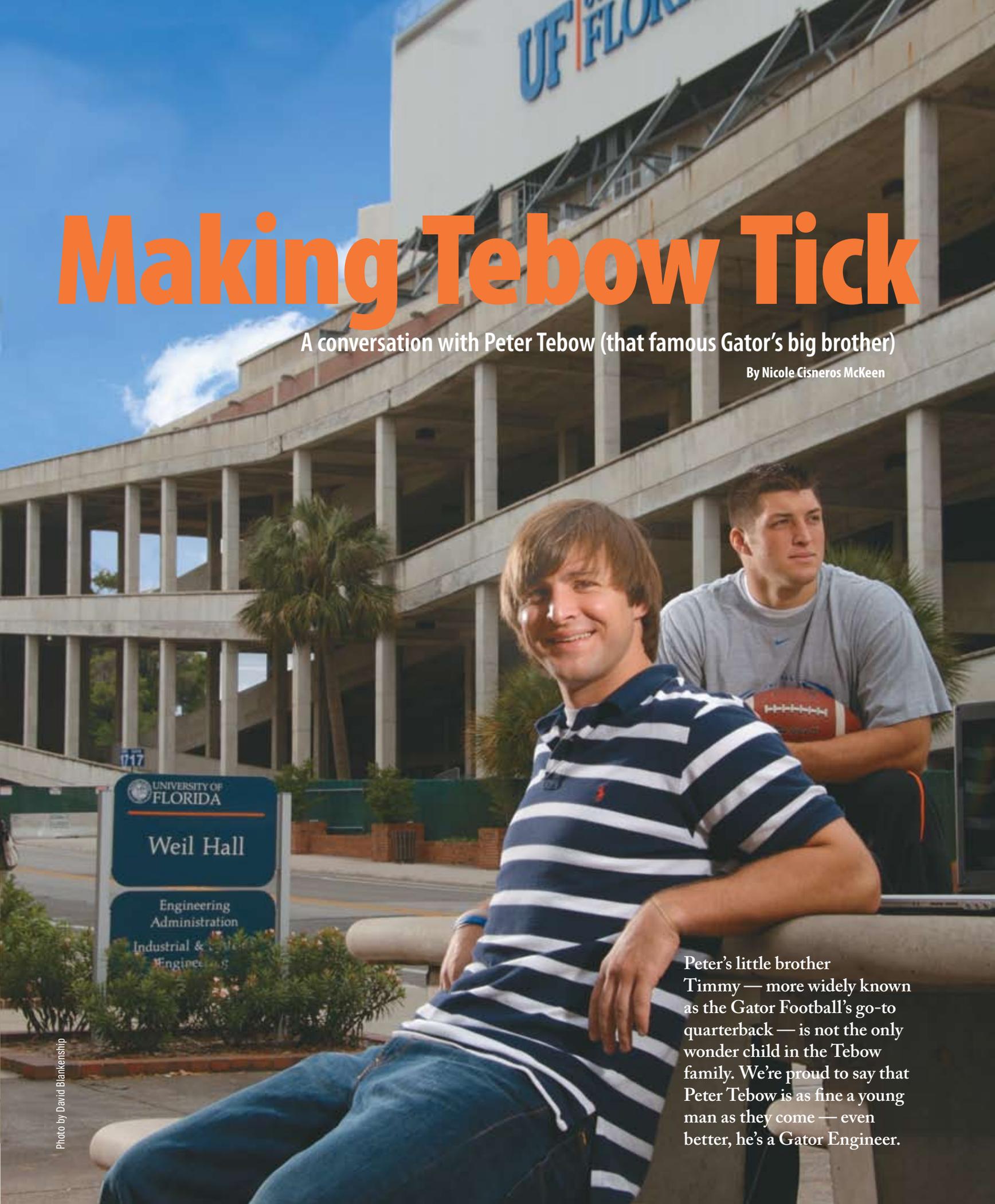
For more than 60 years, Gator Engineering undergrads have celebrated Engineer's Week. The science fair is always a big hit — especially when there's ice cream involved.

UF FLORIDA

Making Tebow Tick

A conversation with Peter Tebow (that famous Gator's big brother)

By Nicole Cisneros McKeen



Peter's little brother Timmy — more widely known as the Gator Football's go-to quarterback — is not the only wonder child in the Tebow family. We're proud to say that Peter Tebow is as fine a young man as they come — even better, he's a Gator Engineer.

There is more to Peter Tebow than having a famous brother — a lot more.

A soft-spoken 22-year-old, he repeatedly answers questions with Southern self-confidence — *Yes Ma'am, No Sir*. Tebow is the kind of young man fathers want their daughters to marry and mothers want their sons to befriend.

Tebow, a senior majoring in computer science and minoring in business, says he always had a fondness for computers.

“Growing up being home schooled you have a lot of time to pursue what you are interested in,” Tebow said. “I had already taken a few HTML classes. I loved working on computers. I guess that is just what I had my mind set that I wanted to do.”

Tebow went to community college for two years. When it came time to take the next step — well, he says there was only one place for him.

“I have always been interested in engineering,” Tebow said. “When I was a little kid I always took things apart and put them back together. So the best engineering school in Florida is the University of Florida. UF was the only place I applied.”

Tebow first focused on computer software engineering and then moved to computer and information science and engineering. He liked the science

School in Jacksonville. Robby earned a football scholarship to Carson-Newman College in Tennessee.

And Timmy found a home in The Swamp. If there is one thing the Gator Nation knows how to do, it's crown a king. Tim Tebow might be the reigning monarch of Titledown, but he is just *Timmy* to big brother Peter.

“Most people see him as an iconic athlete that just performs for Florida Football,” Tebow said. “To me he's just my brother. I helped him move

“When I was a little kid I always took things apart and put them back together. So the best engineering school in Florida is the University of Florida.”

application, he said. His favorite class was data structures with associate professor Manuel Bermudez.

“It made sense to me very much on my level,” Tebow said. “You could see the real life application immediately. I think professor Bermudez did a great job teaching that course. I love the fact that you are figuring out how something works all the way through.”

There Was Really No Option

Growing up, the idea of being a Gator was like eating breakfast — it was part of life. His parents graduated from UF — his father with a degree in physical education and his mother a degree in journalism. Three of the five kids have all been part of the Gator family.

The Tebow clan — Robby, Christy, Katie, Peter and Timmy — all have an aptitude for sports. The brothers mowed a patch of land into a putting green. Peter and Robby both were linebackers at Trinity Christian

out the other day, and he's still just a 19-year-old kid who's very big and very gifted.”

That very big kid, for the record, is 6-foot-3-inches. But being the vertically challenged look-a-like of the Swamp Darling isn't so bad, the 5-foot-10-inch Tebow says.

It is Peter “The Help Desk” Tebow whose calling veered from the athletic sort.

He got the nickname from his brother-in-law. Tebow says any time he's at home he is asked to fix everything — the TV remote control, the stereo and of course computer glitches of any kind.

Relatively Normal

The Tebow kids grew up on a 44-acre farm outside Jacksonville, Fla. They had cows — which they slaughtered and ate. Their mother, Pam, home-schooled all of them from preschool through high school — before it was fashionable. They also lived in

Tebow Tidbits

He's a hugger.

Started the Facebook group “Bring Tim Tebow to UF.”

He can swing dance (our intern Chris says this will get him so many ladies).

Monday night ritual — leads a Bible study, then tunes into FOX to watch 24.

Finished 10th out of 70 in his data structures class.

American Idol fan — at the beginning of the season with the really bad singers.

At 19, he was a youth pastor at Avondale Baptist Church in Jacksonville, Fla.

Computer — Toshiba satellite M45, prefers Windows over Linux.

Summer 2007 travel plans include the Florida Keys, California, Israel and the Philippines.



the Philippines — where Timmy was born — so their father, Bob, could establish an orphanage and an evangelistic ministry.

Today, Bob Tebow runs an orphanage on the island of Mindanao in the Philippines. About 50 children live at Uncle Dick's House, named after a man who became a Christian with Bob Tebow's help.

Uncle Dick's House isn't the solemn and dingy stereotype portrayed on American movie screens. This place is full of love and happy kids. It's the Tebows' dedication that keeps it that way.

Peter Tebow visits the orphanage each summer and is usually accompanied by volunteers from the U.S. He says

his happiest times are when he's in the Philippines. Missionary work is his passion.

"I was hoping to get a job in the field [computer engineering] to support myself," Tebow said. "I also have a big interest in Christian ministry, and so my heart is torn. Maybe I could do both?"

He says he often thinks about how he can combine his love for computers and his passion for ministry work.

"I have thought about this a lot, and it is something that I have prayed about. 'God, why am I in this crazy hard major when I might end up doing my ministry anyway?' I am not sure I know that answer." 🐾

Lovin' Every Minute Of It

Peter Tebow's father, Bob, founded this orphanage after a baby girl was abandoned and left to be cared for by her grandfather. The man brought the baby to Bob Tebow, who was doing missionary work in the Philippines, saying that if they didn't take the baby, he was going to throw her in the river. The orphanage's caretakers adopted the baby, Queenie, who is now 18 and in college.

The POWER of ONE

After scouring the earth to find help for his son, James Klausner has become the humble hero of several desperate families.

By Chris Traina

James Klausner's dusty office is littered with stacks of paper, and his computer plays Led Zeppelin sound effects. Atop a wall-length, wooden bookshelf filled with wrist-thick engineering books sits a gold-framed portrait of his deceased son, Jordan.

He works as a University of Florida professor and interim director of UF EDGE, one of the College of Engineering's distance learning programs. He travels constantly to raise research funds and directs an academy for disabled children. And — with what free time is left — he plays Nirvana and Jimi Hendrix on his guitar.

He would like to own a German shepherd, but said he travels too often.

In 1993, 6-month-old Jordan was diagnosed with cerebral palsy, a severe neuromuscular birth defect. Doctors at Shands at UF said Jordan would never walk or talk.

Most methods of helping children with cerebral palsy in the U.S. leave children confined to beds and wheelchairs.

Unwilling to accept the prognosis, Klausner began his own research. He learned of a technique called conductive education that produced positive results in Eastern Europe.

Conductive education, developed in the 1940s by András Pető, is popular

“There’s no feeling sorry. We give you lots of love and lots of care...but there’s no feeling sorry.”

in Hungary but was only recently introduced in the United States. There are no programs in the U.S. that train “conductors,” as teachers of the method are called. In 1993, only a handful of people in the U.S. had heard of it, Klausner said. The technique uses repetition to teach someone to first visualize accomplishing a task and then to do it.

Klausner contacted the Inter-American Conductive Education Association and asked for help finding a conductor for Jordan. He found Katalin Szvoboda, a Hungarian conductor. She moved to the U.S. to work with 2-year-old Jordan.

Jordan attended school during the day. Szvoboda lived with the Klausner family and taught Jordan after school for four to five hours a day. At first, his

son struggled to do much of anything, Klausner said. Before long though, Jordan could roll over and sit up, and had begun “walking motions,” giving his father great hope, Klausner said.

“As a parent it was always a battle to try and get people to understand what his capabilities were,” Klausner said.

In 1996 Klausner submitted an idea for a walker for Jordan to an engineering design class. Gator Engineering students got to work.

“One of his legs was very functional,” Klausner said. “We wanted to allow him to have some sort of support so he could use that leg to move himself around.”

The walker, too bulky for home use, stayed at Jordan's school where he could scoot about the linoleum floor.

“Anytime he could be mobile, that was a thrill for him,” Klausner said. “You have to imagine being immobile and cooped up in a chair all the time. It can't be very good.”

Jordan had lung disorders from birth. Though unrelated to his cerebral palsy, the disorder weakened his lungs. On Dec. 16, 1997, 4-year-old Jordan turned over on his pillow while sleeping and suffocated.

Klausner became determined to do something to help parents and their children with neuromuscular

The Jordan Klausner Foundation was established to help children with neuromuscular diseases. For more information, visit the foundation's Web site at www.jordanklausner foundation.org

disabilities, he said. He realized that he could provide access to an effective method of education.

He started the Jordan Klausner Foundation and began a two-month summer program in 2005. Intending to open an academy, he established a corporation, registered with the IRS as a non-profit, solicited funds and found a building — all while maintaining his duties as a professor in the College's Department of Mechanical & Aerospace Engineering.

In 2005 he advertised on the Internet for a conductor for the academy. He found Szilvia Hargitai, who had graduated from the International Petö Institute in Hungary that year.

In October, Klausner opened the Gainesville Conductive Education Academy for children with neuromuscular disabilities.

"The doors of the bus open and shut," sang Hargitai as she taught a child to open and close her knees. She also sings Hungarian rhymes. Nursery rhymes play a big part in the repetitive teaching technique.

"It's a very intensive physical program," Klausner said. "Building self esteem in these kids is very important."

From arrival, the children are removed from wheelchairs and are taught to move around the room using their own strength. The children are expected to work hard.

"There's no feeling sorry," Klausner said. "We give you lots of love and lots of care...but there's no feeling sorry."

Klausner spends 20 hours a week managing the academy's finances and handling daily affairs.

"I work day and night," he said. "There's really no balance."



Photo by Ron Franklin

Five children, whose ages range from 3 to 11, spend six hours per day, Monday through Friday, at the academy. Throughout the day, they exercise on wooden furniture specially built for the education technique.

Each piece of furniture helps the child learn to do a specific task, Hargitai said. Klausner got the plans for the furniture from the Petö Institute in Hungary. He and Gilchrist and Levy County Circuit Judge David Glant, the husband of Klausner's ex-wife, built the furniture.

"I turned my garage into a woodshop and we went to work," Klausner said.

Klausner is used to working with his hands — he earned his undergraduate engineering degree from the U.S. Merchant Marine Academy, where he learned to repair cargo ships at sea.

His efforts were rewarded. Parents who had never heard of conductive education were amazed at the progress their children had made in as little as two months, Klausner said.

Whereas the traditional approach means about one hour per week of therapy, children at the academy receive up to 30 hours per week, he said.

"It's a lifestyle," explained Paula Dewey, the academy's assistant teacher. "You can't do this one hour per week and make it happen."

Klausner keeps the academy going, she said.

"There were many times when it was difficult," she said, "but he didn't give it up." 🐢

One step at a time

James Klausner coaches Audrey, 2, as she scoots along the floor of the academy. Audrey suffers from spina bifida, a birth defect that affects the spine.



Photo by David Blankenship

Just Another Day As The Almost-Oldest Living Gator Engineering Grad

Bert O'Neal with his daughter, Marjie Eubank. O'Neal is a few months too young to be the *oldest* living grad. We tried to contact the oldest grad, too, but had no luck. If you're out there, though, give us a call. You know who you are.

The Life & Times Of

Albert Ellis O'Neal

Gator Engineering's 2nd Oldest Living Grad Speaks

By Nicole Cisneros McKeen and Megan E. Gales

The year was 1910. The College of Engineering was in its infancy and Albert Ellis O'Neal turned 2 years old. Ninety-seven years later, as the College approaches its centennial, O'Neal provides a little perspective, history and wisdom for Gator Engineering.

Albert Ellis O'Neal grew up on a 260-acre farm in southwestern Ohio. The land was part of a 3,000-acre tract the O'Neal family purchased from a Revolutionary War veteran in 1799. They grew crops in the summer, stockpiled ice in the winter, and milked cows thrice daily. They frequented Uncle Ed Janney's Drug Store, bought dry goods at Funkey's, and paid 25 cents for haircuts at Lee Hawke's Barber Shop. He rode to second grade on the mule-drawn school bus, and learned to drive on a Ford Model-T.

He is a Gator Engineer. Born on Dec. 2, 1908, he's about five months too young to be the College's oldest living graduate.

In 1933, O'Neal's father shipped the dairy cows South and the family moved to Florida.

O'Neal enrolled at the University of Florida College of Engineering as a junior. He graduated with a bachelor's degree in civil engineering on June 10, 1935.

JUNE

WEDNESDAY 29

185 to come

180 days past

sent transcripts of my Antioch record to Ohio State and the U. of Florida. I have one more which I think I will send to the U. of Texas. I want to see what they will give me for it. If some school makes a good enough trade, and I can borrow some more money, some college is apt to have an increase in enrollment of one.

THURSDAY 30

184 to come

Historical Record

Thanks to Bert O'Neill's daily diary entries, there's evidence that even in 1934 — 73 years before the Buckeyes continually succumbed to the Power of the Gators — UF was already one up on Ohio State.

"When I graduated from Florida I was one of the few who had jobs to go to, and I had two!" O'Neill wrote in an autobiography he penned in 1999.

He had a job lined up at the Muskingum Watershed Conservancy District in his native Ohio. He arranged to report there on Aug. 1, and in the interim work as a graduate assistant for UF's summer class on surveying.

Or at least, that was the plan.

On the first day of the summer semester in 1935, O'Neill sat in a classroom with the students. They were waiting for professor Bill Sawyer, who didn't show up. Turns out he had the mumps. A man came into the classroom and announced that O'Neill was in charge.

"Fortunately I had about three years of actual surveying experience, in the field and in the office, so we went to work surveying all over the U of F campus, and all of the students passed the course," O'Neill wrote. *"And the only time I saw the professor was when I went over to his house to see how he and the mumps were doing."*

In late July 1935, O'Neill boarded a bus and headed to New Philadelphia, Ohio.

Throughout his career of more than 60 years, O'Neill built a diverse list of engineering jobs and titles. He was a self-described computer for the Muskingum Watershed Conservancy District and an inspector for the Ohio Highway Department. He worked for

G.A. Youngberg and Associates in Jacksonville, Fla., and the U.S. Naval Air Station in Pensacola, Fla. He was a detail draftsman for the American Bridge Co. in Pennsylvania, a design engineer for Smith & Gillespie in Jacksonville, and a civil engineer for the U.S. Engineer Department in Jacksonville.

In 1943 he spent three years as an active duty in the U.S. Navy Civil Engineer Corps. After World War II, he did another stint at Smith & Gillespie.

In 1952, he went into private practice.

He said he was the first civil engineer in Orlando when he opened his own engineering consulting firm, A. E. O'Neill Associates Inc.

A 1935 Time Warp

Lots of things happened during the year Bert O'Neall graduated from the University of Florida.

Hitler violated the Treaty of Versailles by introducing conscription.

Italy invades Abyssinia (Ethiopia).

Persia formally changed its name to Iran.

On June 12, Huey Long finished a 15-and-a-half-hour speech in the U.S. Senate — 150,000 words. Long died Sept. 10.

Parker Brothers released the board game Monopoly.

Elvis was born on Jan. 8.

The first beer can was introduced in New Jersey (no doubt an engineer had something to do with this).

German Jews were stripped of their citizenship rights by Nuremberg Race Laws.

The Richter scale was born.

Sir James Chadwick won the Nobel Prize for Physics for discovery of the neutron.

Oil pipelines between Iraq, Hiafa and Tripolis were opened.

Twenty years later, O'Neall sold his business and turned to volunteer work. He offered his professional skills free of charge to the nearby town of Eatonville — the oldest surviving incorporated black town in the U.S. and the hometown of author Zora Neale Hurston. After a couple of years, the town council named him Town Engineer and put him on a retainer. Nearly 25 years later, O'Neall officially retired.

“As a matter of fact, I let my Florida Professional Registration expire on Feb. 28, 1999, when it came due for renewal,” O'Neall wrote. “My registration number was 2060, which I had kept in effect for 57 years continuously! That was a sad experience to let it expire.”

O'Neall has a long list of community and professional service. It covers everything from a term as president of the Kiwanis Club of North Orlando to being honored as the 1964 Engineer Of The Year, to serving to two terms as president of the Florida Engineering Society, to serving on the State of Florida Textbook Committee.

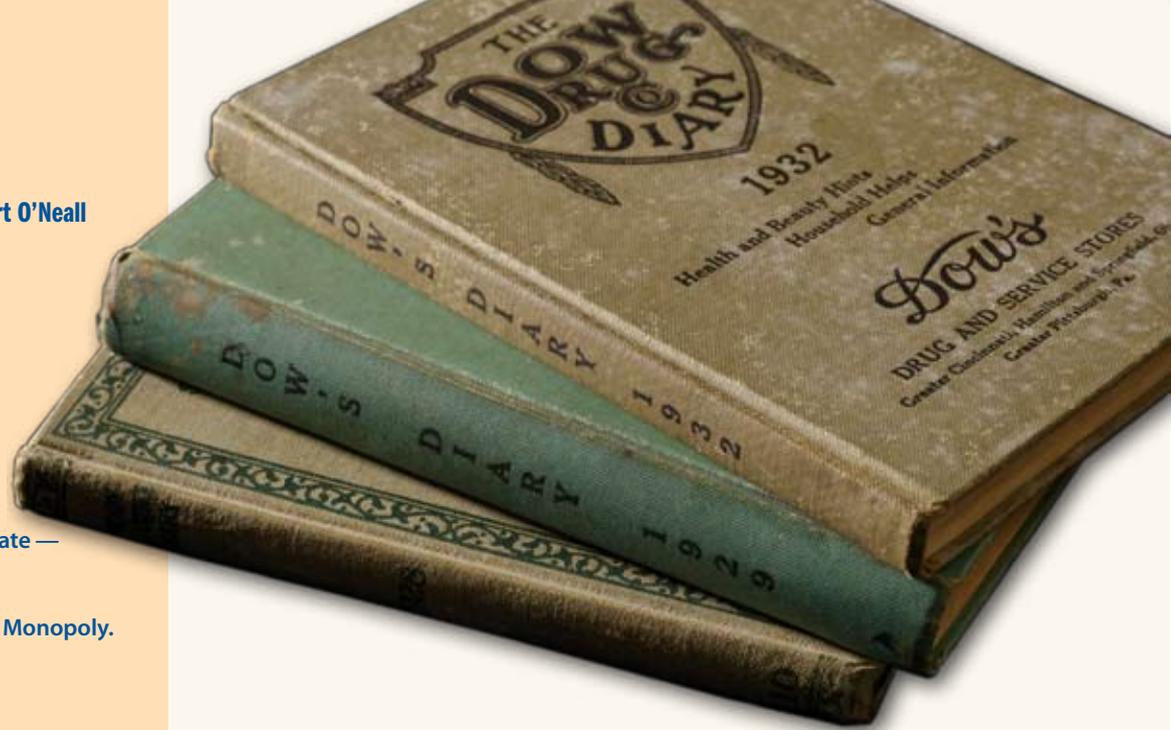
For as dedicated as O'Neall is to his community, he is far more committed to his family. He married Margaret Jean Young on Nov. 27, 1937. They were married for 55 years and had three children. She died in June 2003.

Today, O'Neall lives by himself in the Orlando, Fla., home he shared with his wife. He has a full garden of 5-

6-foot blooming pink camellia trees, ferns and bromeliads. He still keeps an office in his home at the top of a closet-hidden spiral staircase. The 98-and-a-half-year-old O'Neall regularly sprints up the stairs to work on the family genealogy on his typewriter.

O'Neall embodies the life of an engineer. He is a loving father. He was an adoring husband. He is a dedicated engineer. He is honest. He is a Gator Engineer.

“There is one thing that I have always wondered about,” O'Neall wrote. “And I do not tell it here in any way asking for praise or reasons. But why was I selected by my peers for all of the honors and positions that I have had? I certainly did not go after any of them, but I was honored and pleased to do what I could to ‘pay my dues’ to society. Perhaps I just happened to be in the right place at the right time, and was always willing to take on the new challenge. Perhaps, because of my particular heredity and environment, it was predestined and I really had no choice but to accept all that was offered.”



Faculty

footnotes

Chemical Engineering

Dmitry Kopelevich is an NSF CAREER award winner and is developing a method of studying substances that can both dissolve in water and separate from it.

Dinesh Shah was elected as a Fellow of the American Institute of Chemical Engineers.

Civil & Coastal Engineering

Tom Hsu won a 2007 NSF CAREER award for the study of the effect on coastal sediment from people and natural disasters.

Computer & Information Science & Engineering

Shigang Chen is an NSF CAREER award winner for research in wireless networking.

Benjamin Lok won a 2007 NSF CAREER award by using virtual people to train medical students.

Electrical & Computer Engineering

Distinguished professor **José Principe** won the 2007 IEEE Engineering in Medicine and Biology Society Career Achievement Award.

Dapeng Wu is one of this year's NSF CAREER award winners for wireless networking research.

Materials Science & Engineering

Henry Hess' research quest to better understand nanotechnology won him an NSF CAREER award.

David Norton was elected as a Fellow of the American Physical Society.

Distinguished Professor **Stephen Pearton** received the John A. Thornton Memorial Award and Lecture from the American Vacuum Society.

Eric Wachsman was selected to become a Fellow of the Electrochemical Society.

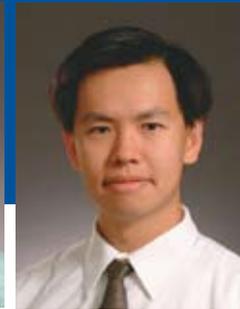
Jiangeng Xue is working to provide low cost solar energy and is a 2007 NSF CAREER award winner.

Mechanical & Aerospace Engineering

Rick Lind received the 2007 SAE Ralph R. Teetor Educational Award from the Society of Automotive Engineers.



Dmitry Kopelevich



Benjamin Lok



David Norton



Dinesh Shah



José Principe



Stephen Pearton



Tom Hsu



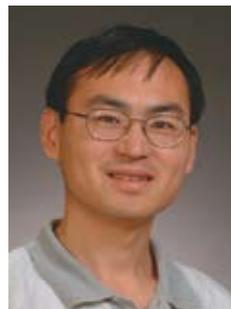
Dapeng Wu



Eric Wachsman



Rick Lind



Shigang Chen



Henry Hess



Jiangeng Xue

Grand Opening

The Powell Family Structures & Materials Laboratory is now a reality, thanks to a generous gift from alumnus Robert O. Powell and his family.

"I owe the University a lot," Powell said. "I want to give back to the University and the civil engineering department. I hope my support will provide the best opportunities for future students' learning experiences."

Ted Krauthammer will be the director for the lab, which is also housing the Center for Infrastructure Protection and Physical Security.

From left — CCE Chair Joe Tedesco, Ann Powell, Bob Powell and Ted Krauthammer at the April 27 building dedication.





Photo by Linda Corsair

Alumni updates

Hey, What's Going On?

1959

Henry "Hank" Katz (B.S. AE, M.S. '62)

"In summer 1959, I worked in the dynamics test lab at the Martin Co. in Orlando. I returned to UF in the fall, majored in Physics and did my research in the College of Engineering. I graduated in February 1962 with an M.S. in Physics.

I went to work in Seattle with the Boeing Co. I designed several things that were used on the Apollo Program. From there, I went to Baltimore, Md., to work with the Martin Co. in the nuclear safety department. After they decided to move everything to Colorado, I worked at the Goddard Space Flight Center. I wrote Fortran programs and verified contractor performance. Next, I moved to the National Security Agency.

While there, we were visited by a representative of the Army War College who offered us — at no cost to us — a Ph.D. in any field that they had. I chose international studies. After taking eight courses, all passed with an A, I wrote my dissertation with information from the CIA, FBI and NSA. It came to a total of 30 pages — 27 pages of background and 3 pages of conclusions. After submitting it to the AWC, the director wrote me back saying that it should have been written on asbestos. There exists only the one copy, and it is shown to each new president for reading only. The title will not be released until 60 years after my death. The document itself will never be made public.

After retiring from NSA, I began full-time at The University of Maryland, Baltimore County in the computer science department. I taught various computer science topics, one that I developed, entitled *Scientific Computing*, became a required course for any art and science B.S. student.

I am now retired from UMBC and looking for full-time work at M.B. Kleins, a model-train store in downtown Baltimore. They need someone who knows Microsoft Excel, and I know it like the back of my hand."

1938

Harrison LeVan Kalbach, B.S. CHE, has retired.

1949

Maurice C. Pimm, B.S. EE, has retired.

1955

Lewis H. Kent, B.S. CE, is chairman of the board at George F. Young Inc.

Howard W. Sims, B.S. EE, is a semi-retired senior consultant at Sims Wilkerson Cartier Engineering, a company he cofounded in 1991.

1959

George H. Shipley, B.S. EE, retired as a staff engineer from Honeywell in 1999. He is now a world traveler.

James "Jim" Joseph Feierbacher, B.S. EE, is a principal of Feierbacher Engineering. He received his P.E. for Florida in 1965 and is a member of Rotary International.

1960

Richard W. Owen, B.S. ISE, is retired from his position as a senior counsel for the FDIC, which he worked for from 1988-2004. He was also elected justice of the peace for Llano County, Texas, and retired from that position in 2004 as well.

1961

Leon Roland Young Jr., B.S. ME, is the director of engineering services at OCI Associates Inc.

1962

Walter R. Hayne, B.S. EE, has retired.

Joseph Robert Gush, B.S. CHE, went on to earn a B.S. in math at the University of New Mexico in 1975 and then an MBA from University of Las Vegas in 1986. He retired from government work after 32 years and is now an information analyst.

1963

Birties R. Dunford, B.S. ISE, has retired and was a past president of the Tampa chapter of the Aire Operation of Legacy Computer Simulations & Design.

1965

Jerry Mikell Owen, B.S. CE, is a part-time engineer for Darabi and Associates. He worked for 37 years in environmental protection and has retired as a district water facility administrator.

1966

Joe Richard Sanders, B.S. EE, has retired from his position as a manager of logistic support engineering at GE.

1967

Christian S. Bauer Jr., B.S. ISE, '67 M.S. ISE, '75 Ph.D. ISE, is the interim chair of the IEMS Department at the University of Central Florida College of Engineering & Computer Science. He has served on the State Board of Professional Engineers.

Erwin "Erv" F. Grau II, B.S. EE, is vice president of tactical airborne systems for the Raytheon Company.

1968

Sterling E. Schultz, Ph.D. EE, has retired as a board of directors member for the Nebraska Association of Natural Resources Districts. He now works on his farm in north-central Nebraska with his wife, Isabel.

Thomas N. Roberts, B.S. ISE, has semi-retired after working for 30 years in defense signal intelligence and working in both the government and private sectors as a systems engineer and project manager. He is currently active in community volunteer work and is a part-time handyman.

1970

Robert L. Matthews, B.S. CE, served on the Florida Board of Professional Engineers from 1999-2006 and was chairman from 2004-2005. He is currently a senior vice president at COM.

1971

Cliff J. Kirchmer, Ph.D. EE, retired in January 2007 from the Washington State Department of Ecology after 19 and a half years.

1973

Leon Nathaniel Williamson Jr., B.S. ET, is a consultant for Invensys.

Ron Stein, B.S. EE, is CEO of SercoNet Ltd., which focuses on indoor wireless technologies and solutions and is located in St. Petersburg, Fla.

Roger N. Madariaga, B.S. ISE, is vice president of GKN Driveline.

1974

McLead Bleakley, B.S. CE, has a son, Justin, who is in his second year at UF's Levin College of Law.

James Frank Wattenbarger, M.S. CE, is a director of advanced technology.

1975

Wayne Charles Fieler, B.S. CHE, is the F62 Business Unit manager for Firestone Fibers and Textures.

1976

Michael A. Ponzio, B.S. CHE, M.S. EN '78, is now the manager of environmental health and safety for the SI Group.

1977

Bill Boyer, B.S. EN, experienced a brain hemorrhage in October 2005 that left his entire right side paralyzed. He spent a month in the hospital with two weeks of rehabilitation. He has continued to recover and can now walk without the assistance of a cane. He was unable to resume his job, but looks forward to retired life.

1978

Jeffrey Modlin, B.S. ET, has been promoted to associate director of engineering and utilities at Florida Atlantic University.

David Barreiro, B.S. CE, M.S. CE, is returning to Gainesville with Nodarse & Associates Inc., where he is a senior geotechnical engineer. He has worked on large retail stores, state Road 46A and UF's Pathogen Research Facility.

Luke Miorelli, B.S. CE, is president of ME Construction, a member of NSPE, a member of the Forensic Engineering Society and the past president of Eau Gallie Rotary Club.

1979

Orlando Arana, B.S. ME, is a senior mechanical engineer for DHS-USCG and owns a private practice. He is a certified energy manager and certified indoor environmentalist.

1981

Mark C. Pedersen, B.S. EN, has become an area engineer for Republic Services Inc.

Stephen R. Weaver, B.S. CE, M.S. CE, has been promoted to vice president of Nodarse & Associates Inc. and manager of its Jacksonville offices. He has worked on projects such as an Interstate 295 overpass and roadway improvements, Seabreeze Bridge replacement and large retail spaces.

1982

Paul Nicolas, B.S. CHE, founded Wastech Controls & Engineering Inc. in 1987. He is now president and CEO of the company, which provides environmental engineering and manufacturing of automated environmental products.

William B. Thompson, M.S. ME, works for the Motorola Corp.

1983

Capt. Craig McCartney, B.S. EE, is an F/A-18 pilot for the U.S. Navy.

1966

Jim Schuttenberg (M.E.)

"I received a Master of Engineering in 1966 but spent almost no time in Gainesville. I was working for General Electric in Daytona Beach and was part of a new UF program called Genesys, which if I recall stood for Graduate Engineering Education System. We had a small two-classroom building with TVs to watch professors teaching in their classrooms in Gainesville. Microphones were available to ask questions. It was quite an advanced system at the time. A number of GE engineers took advantage of the program.

I am retired and living in Scottsdale, Ariz. I was proud of the Gators during their recent visit to the Valley of the Sun and their victory in the BCS Bowl."

1984

Frank Anthony Consoli, M.S. CE, is an assistant division manager for Capital Improvements. He was a Orange County Soil and Water Conservation District board member from 2004-2005. He is now attending the University of Central Florida part time for a doctorate in civil engineering and is also a fourth-degree black belt in tae kwon do.

Linda Hudson, B.S. SE, didn't attend her graduation from UF in 1972. So coming back this year to be the commencement speaker for the College's spring ceremony was a missed opportunity revisited.

"In those days they did not have individual college graduations. Graduation was a mass event in the football stadium. It just didn't seem terribly meaningful," Hudson said. "Classes were over. I just hopped in my car and started my first job. I was tired of being a starving student."

Hudson's first job was at Harris Corp. in Melbourne, Fla. After a string of positions and hard work moving up the ranks at defense companies, she is now president of Land & Armaments at BAE Systems, based in London.

According to a recent article in *The London Times*, Hudson is the daughter of school teachers. She grew up in a modest neighborhood in the shadow of Cape Canaveral, where from her home she could see rockets launched into space — Hudson was hooked. She wanted to be a pilot and won a scholarship to UF, where she studied engineering. She was one of only two women

in her graduating class of 380.

While coming to Gainesville isn't a big deal for Hudson — she visits periodically for football games and serves on College advisory boards — she says it was an honor to be commencement speaker.

"It was a real thrill," Hudson said. "In fact, when the dean called I said 'Are you sure? You're supposed to have famous people come be commencement speakers.' I was actually blown away. I considered it a real honor and privilege to be able to come back to my alma mater and contribute to the ceremony."

In her commencement address, Hudson talked about the concern and urgency to get young people interested in engineering early. She also spoke about the need for diversity in engineering and how important it is to have a diverse company — it really is the best business decision you can make, she said. Hudson added that one of the most important things an engineer can do is help people.

"When you look at what engineering is, in my mind it translates into the necessity to give back and the importance of philanthropy."





1966
Glenn Charles Klein (B.S. AE)

Klein is a self-proclaimed burned-out rocket scientist who collects antique barbed wire.

He recently celebrated his 50th year in the aerospace industry. In October 2006, he retired from AK Supply in Anchorage, Alaska, as a technical writer for FRP Composite Structures. These structures protect sensitive aerospace communication gear from the harsh environment.

His career highlights included teaching subsonic and supersonic wind tunnel labs at UF in the old silver hangar. He said he fondly remembers professors John Hoover and Knox Millsaps, and shop mechanic Harry “Shorty” Stroud. After graduation came short stints in maintenance engineering at Pan Am World Airways and Eastern Air Lines. Following his MBA, Klein spent 20 years at the battery factory in Alachua performing various engineering functions on aircraft and satellite batteries. There he earned two patents for aerospace batteries as sole inventor. However, he credits much of that success to two local engineers — Guy Rampel and David Schmidt. Both helped Klein author and present 16 papers at international space power conferences. Klein was later designated as co-inventor for an implantable bone-tissue device at Regeneration Technologies.

In 2002, Klein said he realized a 50-year-old dream during a contract assignment in Baotou, Inner Mongolia, by riding a camel on the Gobi Desert.

“Who could imagine riding a camel in the snow on the Gobi Desert?” he said.

He said he finished his marvelous career for AK Supply while atop a mountain at 5,120 feet in Chicken, Alaska.

Craig D. Kowald, B.S. EE, is an electrical design engineer for The Boeing Co.

Jacqueline Beebe, B.S. CE, is the assistant Pinellas maintenance engineer for the Florida Department of Transportation.

1985
Col. Frederick L. Clapp Jr., M.S. CE, has become a strategic planner for the U.S. Army.

1986
Kevin S. Perko, B.S. CE, is president of the Civil Design Group, which he founded in November 2005 in Oro Valley, Ariz.

1988
James Perkins, B.S. ME, has become a region manager for GE.

Tracey Tubbs Piccone, B.S. ES, was recently promoted to chief consulting engineer for the South Florida Water Management District. She is the first female

to receive this title in the history of the agency and is currently working on Everglades restoration.

1990
Peter Damon van Dam, B.S. EE, is a satellite communications and telecommunications engineer for QUALCOMM.

1991
Rocco Ferri, M.S. AE, has become a senior materials engineer for AAR Composites. He is an FAA Designated Engineering Representative.

Michael E. Frankle, B.S. NE, has become a principal project engineer for Westinghouse.

Jessma Lambert, B.S. ISE, is a senior industrial engineer for the Orange County Public School system.

1993
Kalmer Delton Hendry, B.S. ME, is a program director for LifeSync Corp.

Hey, What’s Going On?

Martin John Miller, M.S. ISE, is a senior manager for FDI-Simulation.

Bilind M. Armaghani, M.S. CE, is a senior engineer for Ardaman & Associates Inc.

1994
Jim Murray Franklin, B.S. ME, has become a manager for FedEx Express.

Luana E. Gibbons, Ph.D., ISE, works for Delta Technology.

1995
Reginald Holder, B.S. EE, is a network planning engineer for Harris Corp.

Anand Shah, B.S. EE, is a senior manager for Accenture.

1996
Vandan N. Tanna, B.S. CHE, works for Dow Corning.

1997
Brian T. Empric, B.S. CE, is a construction manager with Weingarten Realty Investors.

1987
Bill Bierbower (B.S. MSE)



“I have been an entrepreneur most of my career. During the first 10 years following UF I worked for large technology companies but was always working on new business ideas and executions on the side. About 6 years ago my company EasyAwn afforded me the opportunity to focus on my companies full time. Since then I have been on my own...long time no paycheck. It has been a wonderful ride — like a roller coaster — and UF engineering is a large key to my professional and entrepreneurial success.

Monster Tower has been my greatest success. It started in April 2003 and quickly became the most popular aftermarket provider of wakeboard towers and accessories. The product received utility and design patents as well as many trademarks from the U.S. PTO. The products are distributed in several countries and through almost 500 North American boat dealers. I sold Monster Tower to Marine Accessories Corp. in June 2006 and continue in a management and advisory role at both Monster Tower and MAC.

EasyAwn is a very successful small company I have had for almost 10 years. There are two companies interested in purchasing EasyAwn. I plan to sell it in 2007 to focus on Fishmaster, a marine products company I launched in October 2006. I funded another company, Outdoor Audio, where I provide overview, engineering and direction. It had a very impressive first year.

As relatively small companies — all less than \$10 million a year — I have had the opportunity to provide product development for nearly all products while managing every aspect of a small company.”

From One Editor To Another

I have watched fondly as *The Florida Engineer* evolved through the years, as I was the editor (as a student) in the mid 1960s. I think I was probably editor from sometime in 1961 to 1964.

In those years, we had about three issues a year. More than half were ads from major corporations — many looking to fill engineering jobs for the aerospace efforts, which was thriving in Florida in those years.

I was able to get friends and faculty to write articles, and even wrote a few myself. This was the era of Dean Weil. I remember going by his office to remind him to write his article. Byron Spangler, who I think taught me statics, was very helpful as a faculty adviser and Rachel Albertson was a great support.

My own career was heavily influenced by my electrical course in computer design. The campus computer was the IBM 709 and in 1962 the only computer on campus. We had to use a key punch in the basement of what is now Weil Hall. Luckily for me it was right down from our *Florida Engineer* office in the basement. I could sit in my office and watch until it was free, then run down to use it. Someone would pick up the punch cards of our programs and take them to the computer center about a mile away out in the country. After about two hours you checked back and your cards and printout would be ready. The computer was built with vacuum tubes. The director was Rafe Selfridge, whom I later met working with IBM.

At any rate, I fell in love with programming and have been doing it ever since. I had a Ford Foundation fellowship for my master's in electrical engineering, but was motivated to change to industrial and systems. I was especially influenced by Ron Gue and George Brooks. I worked on my thesis at the Shands Teaching Hospital with Gue. Brooks was impressed with my programming ability while doing a project in his operations research course, and recommended me to IBM. They ended up hiring me onto the Gainesville sub-office staff and allowed me to continue my master's while receiving full salary.

I came into IBM in a key year — 1964 — when the IBM 360 was announced. Our Gainesville team sold UF the 360 model-50, and I helped install it. When I left Gainesville in 1968, I believe they were installing a 360-365 in a brand new computer center near the student union. In a March 1968 report, we listed eight IBM computers on campus. These included the Registrar's office, the business office, the main computer center, Shands administration, the J. Hillis Miller scientific computer, the nuclear engineering process control computer, the College of Business Administration, and the Department of Statistics. Two departments — chemical engineering and industrial and systems engineering — had remote terminals into other computers. The library only had a machine that read cards. Can anyone imagine how the business, teaching and research of a major university was managed with eight computers?

After finishing my master's, IBM assigned me to work with Dr. F. William Sunderman, chairman of the Department of Laboratory Medicine at Shands. He wanted to build a lab information system using the IBM 1440 at Shands. I worked day and night for two more years to develop the first lab system south of Birmingham, Ala. It provided cumulative lab reports for all of the nightly hospital patients.

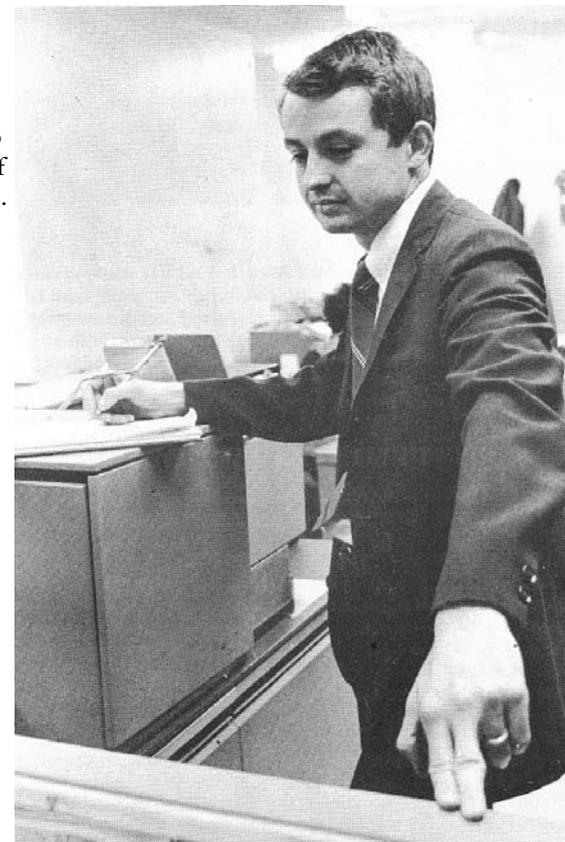
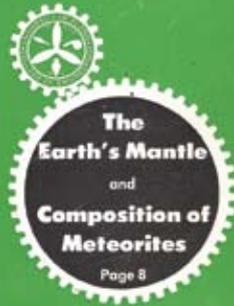
Sunderman took a job as the director of Lab Medicine at the University of Connecticut Health Center, which was taking its first class of medical and dental students in 1968 and whose building would not be completed until 1972. He suggested I apply for the director of information systems position there. I did. I directed the department for 16 years. Those years were still the years of mainframes and develop-yourself applications. It was a very rewarding and creative time.

I was glad UConn did not quite make it to the 2006 NCAA basketball finals or I would have had to test my loyalties: my alma mater versus my work place of 16 years.

Go Gators!

Cliff McKibbin (B.S. EE '63, M.S. ISE '66)

FLORIDA ENGINEER



Cliff McKibbin



1991

Lisa Vickers, Ph.D., PE (B.S. NES)

Vickers joined the Nuclear Criticality Safety Program of BWXT Pantex LLC at the U.S. Department of Energy/National Nuclear Security Agency Pantex Plant in Amarillo, Texas. Vickers is responsible for the safety basis of nuclear weapons-

grade fissile materials. Her previous duties at Pantex Plant included above ground large-scale testing of nuclear weapons-grade high explosives. Vickers has been employed at the Pantex Plant since October 1995.



1992

Glen Vickers (B.S. NES)

Vickers is a certified health physicist. He was promoted to radiation protection manager of the Clinton BWR Nuclear Power Station in Clinton, Ill., operated by Exelon Nuclear Generation. Vickers has 15 years' experience as a health physicist

at the Braidwood PWR and La Salle BWR nuclear power stations in Illinois. He lives in Bloomington, Ill., with his wife, Christina, and their children Amy, 12, and Kyle, 5.

The University of Florida Alumni Association created the Outstanding Young Alumni Award to recognize alumni who have graduated within the past 10 years and distinguished themselves in their professions and communities. Of the 28 awards given this year, three went to Gator Engineers.



Hey, What's Going On?

Richard D. Revel graduated in 2002 with a B.S. in industrial and systems engineering. He is an engineering officer and construction project engineer with the U.S. Army. He was awarded the Bronze Star Medal for management of construction projects in Iraq in October 2006.

Monica A. James-Smith graduated with a Ph.D. in chemical engineering in December 2006. James-Smith held numerous scholarships, summer internships and academic awards. She recently accepted a post-doc fellowship at the University of California, Santa Barbara and plans to continue her surfactant solutions research with a career in academia.

Michael P. Zamora graduated in 1997 with a Ph.D. in materials science and engineering. He began his career with ExxonMobil in Baton Rouge, then transferred to Houston. He is currently in Belgium. He is responsible for the largest polyethylene plant in the world for ExxonMobil and produces the largest mass of polymers in the world.

1998

Dongwei Chen, Ph.D. EE, is a staff engineer with National Semiconductor Corp.

Bradley Beck, B.S. NE, M.S. NE '00, is a medical physicist for St. Vincent's Hospital.

Volkan Kebeli, M.S. ABE, Ph.D. ABE '02, is an engineering manager for Chief Industries Inc.

1999

Joseph Shawn Blanton, B.S. CE, is a project manager with B & E Engineers. He received his PE license in California in June 2003.

2000

Milton Rivera, B.S., is a construction manager for Transom Development.

Joseph Nguyen, B.S. CHE, is a process development engineer for BASF Catalysts LLC.

2001

Jeremy P. Andrews, B.S. CE, is now a project manager for Superior Construction.

Brian A. Bell, B.S. Comp., has been promoted to software engineering manager at Total Parts Plus. He and Jennifer have three children.

Jennifer Ann Dixon Bell, B.S.

ABE, has become a project manager for Rebol-Battle & Associates. She passed the PE exam in April 2006 for water resources. She and Brian have three children.

Meredith Cebelak, PE, is a civil engineer with VANUS Inc. in Tampa and specializes in intelligent transportation systems. She helped design advanced transportation management systems for several Florida counties. Her work on the SunNav Incident Detection System made Florida's roads less congested by helping officials quickly clear accidents. Cebelak trains Florida DOT staff on OSPInSight, a fiber optic cable asset management software. She's a member of the Tampa Bay Institute of Transportation Engineers. She volunteers at an emergency room and as cheerleading coordinator for a youth football program.

2002

Richard D. Revel, B.S. ISE, has become an engineer officer with the U.S. Army. He was awarded the Bronze Star in Oct. 2006 for his management of construction projects in Iraq.

2003

Micheal E. Ahern, B.S. CE, is a graduate engineer with Walter P. Moore. He is currently working on the structural design and construction of the University of Texas football stadium expansion.

Benjamin G. Hettinger, B.S. ME, M.S. ME '05, is a structural analysis engineer for CDI Aerospace.

2004

Marineida Morales, B.S. ME, is a flight controller for environmental control and life support systems for NASA at the Mission Control Center at Johnson Space Center.

Randall J. Miranda, M.S. EE, has become an engineer with Progress Energy.

Carrie Anne Flinn, B.S. CE, M.S. '06, is now a graduate engineer with Walter P. Moore.

Brian Matthew Hatcher, Ph.D. BME, is a technology manager for Medtronic, Spinal and Biologics.

2005

Matthew Olson, B.S. CE, has become a project engineer with Archer Western Contractors.

Andrew T. Heitsch, B.S. CHE, is a graduate student at the University of Texas.

Chelsea L. Gasser, B.S. CHE, is a systems engineer at General Mills.

Thomas Estes, Ph.D. MSE, has become a product developer with Kimberly-Clark.

Anthony Michael Huereca, M.S. ECE, is part of the engineering rotation at Freescale Semiconductor.

2006

Morgan J. Stevens, B.S. AE, is an account manager for new systems sales at Trane.

Joanas Abraham Blake, B.S. EE, is a consulting engineer for M2E Consulting Engineers.

Christopher On, B.S. EE, is a business analyst for Capital One.

Casey D. Breen, B.S. ME, is a staff consultant for Engineering Systems Inc.

Friends We'll Miss

- 1920** Bryan G. Anderson, of Eustis, Fla., died April 1, 1978.
- 1922** Robert D. Atkisson, B.S. ME, of West Palm Beach, Fla., died May 28, 1988.
Maurice F. Bunnell, B.S. CE, of Fort Myers, Fla., died May 1, 1986.
- 1923** Frank M. Keller, B.S. CE, of San Francisco, Calif., died Feb. 26, 1984.
Paul Ernest Leland, of Huntington Beach, Calif., died Jan. 1, 1977.
- 1925** John K. Langford Sr., B.S. CE, of Lake Butler, Fla., died Nov. 14, 1991.
Charles H. Register, B.S. CE, of Tallahassee, Fla., died Jan. 1, 1973.
- 1926** Martin A. Milling, B.S. CE, of Oklawaha, Fla., died June 1, 1986.
Lawrence B. Reed, B.S. CE, of St. Louis, Mo., died Aug. 1, 1974.
Otho B. Turbyfill, B.S. EE, of Lake Worth, Fla., died April 1, 1983.
- 1930** David Edward Lawrie, B.S. EE, of Seaford, Del., died Oct. 1, 1985.
Bartow S. Littell, B.S. CE, of Plano, Texas, died Aug. 6, 2004.
- 1931** Newton W. Brown, B.S. CE, of Sequim, Wash., died June 1, 1987.
Clyde Davis, of Jacksonville, Fla., died Nov. 27, 1988.
Col. Wayne O. Jefferson, B.S. EE, of Gainesville, Fla., died March 31, 1988.
- 1932** Emerson M. Keeler, B.S. EE, of Miami, Fla., died June 21, 1988.
- 1933** George E. Barksdale, B.S. CHE, of Cottondale, Fla., died Oct. 7, 1987.
William W. Miller, B.S. CE, of Middleburg, Fla., died July 1, 1984.
- 1934** Karl M. Allison Sr., of Fort Myers, Fla., died July 1, 1979.
Henry G. Kirkland, B.S. EE, of Moncks Corner, S.C., died Oct. 9, 1986.
Arnold M. Rader, B.S. CHE, of Bloomington, Minn., died Oct. 27, 2006.
- 1935** Frederick W. Ahrano, B.S. CE, of New Smyrna Beach, Fla., died Nov. 1, 1976.
Leslie J. Klotz Jr., of Savannah, Ga., died April 1, 1978.
Leroy G. Leighton, B.S. EE, of Cleveland, Ohio, died March 11, 1990.
Bruno F. Leto, B.S. CHE, of Panama City, Fla., died Oct. 1, 1986.
- 1936** Clarence B. Reinschmidt, B.S. CHE, of Savannah, Ga., died Jan. 1, 1978.
- 1938** Julien P. Benjamin Jr., B.S. ME, of Jacksonville, Fla., died Feb. 25, 2007.
Richard L. Lampp, B.S. CE, of Jacksonville, Fla., died March 7, 1994.
- 1939** John H. Brundage, B.S. EE, of West Caldwell, N.J., died Jan. 10, 1992.
Max Carey Jr., B.S. CHE, of Monrovia, Md., died Dec. 14, 2002.
Harold W. Kelley, B.S. EE, of Washington, D.C., died Oct. 11, 1973.
Richard E. Raymond, B.S. EE, of St. Petersburg, Fla., died July 18, 1992.
- 1940** Bruce G. Bingham, B.S. EE, of Encinitas, Calif., died Nov. 22, 2006.
William N. David, B.S. CHE, of Neptune Beach, Fla., died Oct. 1, 1979.
Harry T. Jones, B.S. CE, of Fort Lauderdale, Fla., died Sept. 8, 1989.
Wickliffe B. Kirby Jr., B. CE, of Bradenton, Fla., died Nov. 21, 2006.
Clayton H. Moore Jr., B. EE, of Tallahassee, Fla., died June 6, 1991.
- 1941** Charles Joseph Jr., M.S. CHE, of Rock Hill, S.C., died Feb. 1, 1985.
William F. King, B. IE, of Perry, Fla., died July 30, 1993.
- 1942** Vincent L. Burkhardt, of West Palm Beach, Fla., died Sept. 1, 1988.
Alfred A. Lang Jr., of Winter Haven, Fla., died Jan. 19, 1996.
- 1943** Richard M. Lane, B. EE, of Milton, Fla., died June 13, 1996.
Robert M. White, of Fernandina Beach, Fla., died Nov. 27, 2006.
- 1944** Andrew O. Jackson Jr., B. EE, of Bel Air, Md., died June 17, 2006.
Dorothy L. Morrison, of Fernandina Beach, Fla., died Nov. 21, 2006.
- 1946** Eugene H. Beach, B.S. IE, of Lutz, Fla., died Nov. 14, 2006.
- 1948** Thomas G. Alderdice, B. CE, of Jacksonville, Fla., died May 18, 1983.
Arnold J. Carrico, B. CE, of Walnut Creek, Calif., died Dec. 23, 2006.
- 1949** George F. Abraham, B. IE, of Brandon, Fla., died Oct. 1, 1985.
Pierce Evans, B. EE, of St. Augustine Beach, Fla., died Nov. 25, 2006.
Leslie E. Joughin Jr., B.S. IE, of Tampa, Fla., died July 1, 1976.
Thomas B. Kimball, B.S. ME, of Houston, Texas, died May 1, 1983.
Leo E. Morgan, M.S. EE, of Gainesville, Fla., died Jan. 25, 2007.
- 1950** M. Emory Dawkins, M.S. CE, of Orlando, Fla., died Nov. 23, 2002.
Zeb C. Grant, B. CE, of West Palm Beach, Fla., died Dec. 1, 1978.
Marion S. Hardee, B.S. IE, of Huntsville, Ala., died Nov. 30, 2006.
Eilhard N. Kahlenberg, B.S. CHE, of Sarasota, Fla., died April 17, 1974.
Lafayette L. Sale Jr., B. CHE, of Woodland, Maine, died Aug. 1, 1983.
- 1951** Ray H. Adams, B. EE, of Hollywood, Fla., died April 1, 1987.
William E. Johnston, B.S. EE, of San Jose, Calif., died Feb. 1, 1974.
Jame H. Ramseur Jr., MSE, of Roanoke, Va., died May 1, 1984.
Aubrey M. Thomas, B.S. EE, of Alachua, Fla., died June 18, 2004.
- 1952** James H. Atkins, B.S. IE, of Miami, Fla., died March 15, 1989.
- William K. Berglund, B. CHE, of Jacksonville, Fla., died Oct. 26, 2006.
Palmer A. Brown, B. CHE, of Baton Rouge, La., died Feb. 1, 1983.
Robert H. Wassum Jr., B. IE, of Orlando, Fla., died March 8, 2007.
- 1953** John R. Sandlin Jr., B.S. EE, of Merritt Island, Fla., died Nov. 13, 1972.
- 1954** Thomas C. O'Bannon, B. CE, of Melrose, Fla., died Dec. 20, 2004.
- 1955** Aubrey C. Goodwin, B. ME, of Pensacola, Fla., died July 18, 1978.
William Leslie Gryder, B. EE, of Orlando, Fla., died Jan. 1, 1974.
Edgar L. Lucas, B.S. IE, of St. Augustine, Fla., died Nov. 23, 2006.
- 1956** Marvin A. Brown, B. EE, of Burke, Va., died Jan. 8, 1996.
Col. Alfred S. Hanison, M.E. EE, of New Braunfels, Texas, died Nov. 1, 2006.
Lloyd Alden Knight, B.S. EE, of Melbourne, Fla., died April 4, 1990.
Minas E. Nicolaidis, B. EE, of Port Orange, Fla., died Oct. 20, 2006.
Thomas B. Redmond Jr., B. CE, of St. Augustine, Fla., died March 1, 1984.
Col. James C. Schoonmaker, B. ME, of Jacksonville, Fla., died Feb. 21, 2007.
Earl E. Schrade, B. CE, of Seattle, Wash., died June 9, 1994.
James M. Smith, MSE CHE, of Jacksonville, Fla., died Nov. 15, 1999.
Donald C. Van Sickle, B. IE, of Tampa, Fla., died Sept. 9, 2000.
- 1958** Col. Victor M. Agostini, B.S. CE, of Alexandria, Va., died Aug. 15, 1987.
Thomas Alberdi Jr., B. CE, of Tallahassee, Fla., died Oct. 1, 1984.
Burwell L. Jordan III, B. EE, of Birmingham, Ala., died Sept. 11, 1978.
John W. Sanwald, B. CE, of Houston, Texas, died Nov. 15, 1988.
- 1959** Wilbur W. Masters III, B.S. EE, of Fayetteville, N.C., died Jan. 11, 2007.
- 1960** Horace R. Jones, B.S. EE, of Pensacola, Fla., died Nov. 2, 2001.
Ronald H. Lightfoot, B. NE, of West Palm Beach, Fla., died Aug. 1, 1972.
Thomas J. Glenn, B.S. CHE, of Fort White, Fla., died April 6, 2007.
- 1962** Norman O. Anderson, MSE, of Gainesville, Fla., died Jan. 20, 1991.
- 1963** Edmond H. Davis Jr., B. IE, of Winter Haven, Fla., died Sept. 18, 2006.
- 1964** James A. New, B. ME, of Jacksonville, Fla., died May 25, 2003.
- 1965** Stuart A. Bush, B.S. EE, of Livingston, Texas, died Oct. 1, 2006.
- 1966** Howard C. Vanzant, Ph.D., of Gainesville, Fla., died Dec. 3, 2006.
Sheldon W. Wingert, B.S. EE, of Gainesville, Fla., died Jan. 6, 2007.
Henry E. Keck, Ph.D. ENM, of Crownsville, Md., died Feb. 1, 1984.
- 1968** Frederick W. Knight, B.S. AE, of Orlando, Fla., died March 1, 1986.
- 1969** Tommy T. Lamb, B.S. CE, of Jupiter, Fla., died April 1, 1985.
Philip N. Lane, ME, of Ormond Beach, Fla., died April 10, 1993.
Raymond P. Schall Jr., B.S. EE, of Lexington, S.C., died March 9, 1993.
James G. Dickenson, M.S., of Jupiter, Fla., died Oct. 1, 1985.
Peter J. Zegan, M.S. ISE, of Mount Dora, Fla., died July 28, 2005.
- 1972** Alexander J. Grant, ISE, of Debary, Fla., died Dec. 1, 1982.
Reginald Clark Krueger, M.E., of Lake Worth, Fla., died March 1, 1982.
- 1973** Peter B. McWhite, Ph.D. ISE, of Potomac, Md., died Dec. 7, 2006.
- 1975** Bruce A. Bunyard, B.S. CE, of Pensacola, Fla., died Jan. 27, 2007.
David S. Marquis, B.S. ENE NES, of Matthews, N.C., died Sept. 9, 2005.
- 1976** Steven H. Carlson, M.E. CE, of Everett, Wash., died Feb. 3, 2007.
Walter L. Larson, B.S. EE, of Gainesville, Fla., died Feb. 1, 1977.
- 1977** Michael D. Morris, B.S. CHE, of Lagrange, Ga., died Jan. 20, 2007.
Terrill V. Smith, M.E. CE, of Jacksonville, Fla., died Jan. 1, 2007.
- 1979** Stephen M. Klein, B.S. CHE, of St. Paul, Minn., died Nov. 13, 1994.
- 1980** Wanzie A. Mcauley, M.E., of Kingsport, Tenn., died Nov. 10, 2006.
- 1982** Sunil V. Kothary, B.S. CHE, of Gainesville, Fla., died May 1, 1985.
- 1984** Rohn O. Adams, B.S. EE, of Raleigh, N.C., died Jan. 26, 2007.
- 1987** Randy Loel Saunders, B.S. CIS, of Fort Lauderdale, Fla., died Jan. 15, 1991.
- 1991** Lanita B. Johnson, B.S. CE, of Orlando, Fla., died Nov. 22, 2005.
- 1999** Mark F. Podlenski, B.S. EE, of Salem, Mass., died July 31, 2005.
Jedidiah M. Shapiro, B.S. CE, of Gainesville, Fla., died Feb. 3, 2007.

Mario Pino, 1986 -2007

The Gator Engineering family is deeply saddened by the loss of Mario Alonso Pino, a third-year industrial and systems engineering student, who died in a car accident May 19. Pino will be remembered as an avid Gator fan and a computer and electronics wizard. Mario is survived by his parents, Maria Garcia-Otero and Bernard Pino, and by his brothers.



11 of the

The summers in Gainesville are hotter than the jalapeños on a double wrapped black-bean burrito from Burrito Bros., steamier than a Skeeter's Big Biscuit, and sweatier than Joakim Noah on game night. And we love every humid second of it.

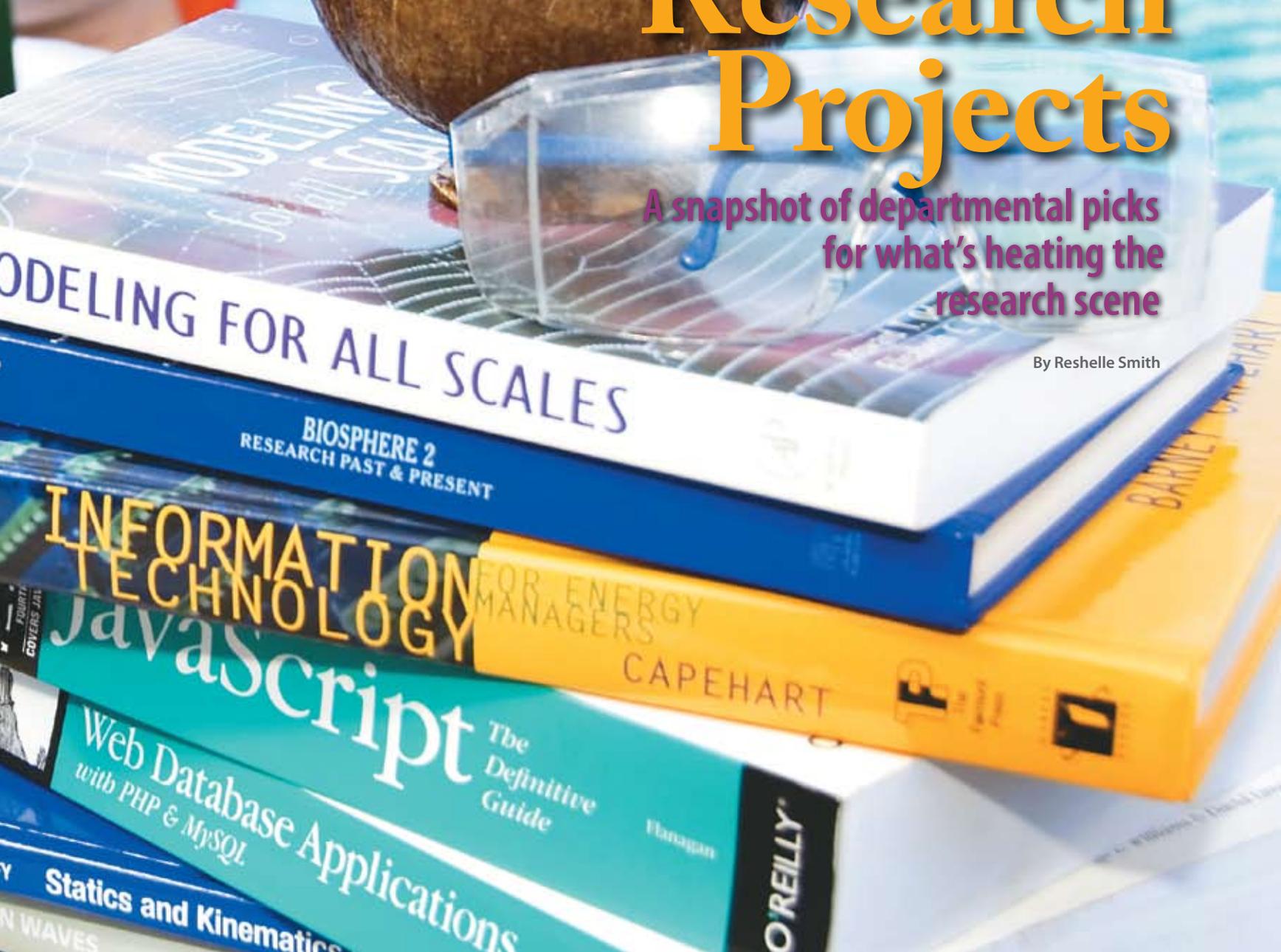
When Gator Engineers aren't stripping off their lab coats for a dip in the Florida Gym pool, they're cranking down the A/C in the research lab and cranking out the coolest stuff since Kelvin's scale.

Summer's HOTTEST

Research Projects

A snapshot of departmental picks
for what's heating the
research scene

By Reshelle Smith

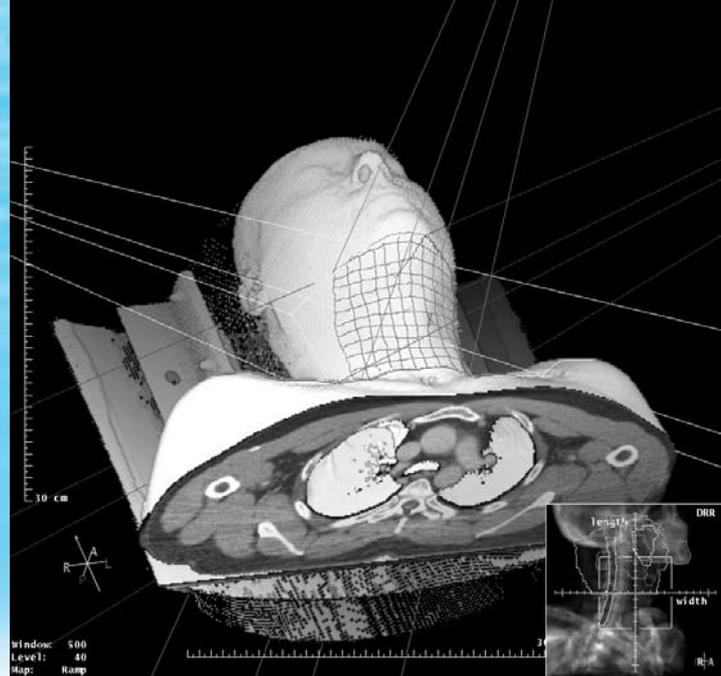


11 of the Summer's **HOTTEST** Research Projects

This isn't alphabetization gone awry, nor is it a contest of hotness — it's the summer's hottest research, just like the title says, presented here in no particular order whatsoever.

1 Electrical & Computer Engineering

Professor John Harris and a team of experts are blazing a trail by developing a microchip device that can be implanted under the skin to collect data from the brain. It can then encode and transmit the information out of the body. The team hopes the device, called an FWIRE — or Florida Wireless Recording Electrodes — will be used in the diagnosis and treatment of epilepsy and will **allow paraplegics to communicate** with external devices. The project is funded by \$1.6 million over four years from the National Institutes of Health. Your thoughts — recorded and communicated wirelessly at a blistering speed.

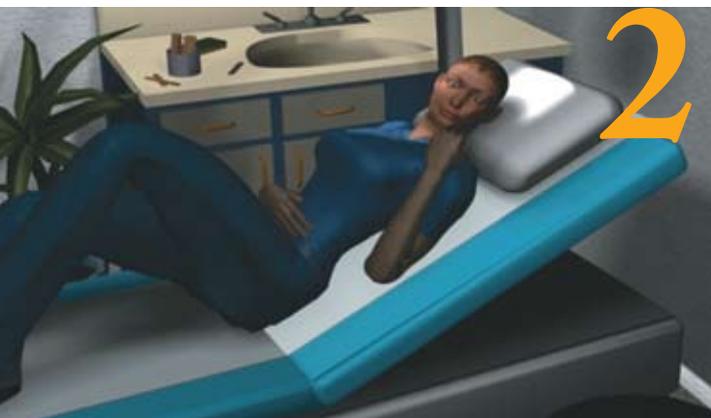
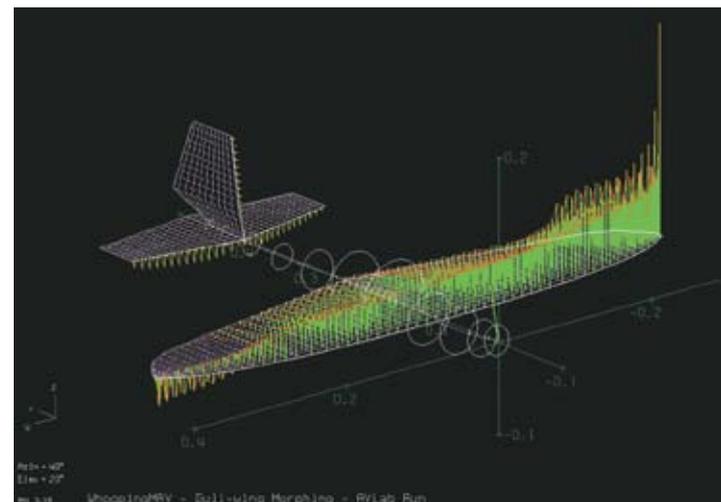


4 Industrial & Systems Engineering

Edwin Romeijn and his team are improving cancer treatment technology using radiotherapy. Unfortunately, radiation damages all cells — not just cancerous ones. Therefore, radiation is delivered to a patient from several different directions in an attempt to kill the cancerous cells and spare the good organs and tissues. Romeijn's Intensity Modulated Radiation Therapy helps researchers **improve cancer treatment** by judiciously shaping the radiation beams. Because of the tremendous number of differently shaped beams available, finding a treatment plan that works is a difficult problem. The research aims to prescribe beam angles and patterns that allow physicians to provide safer and more effective treatment of cancer patients.

5 Mechanical & Aerospace Engineering

Researchers are designing and flying **next-generation aircraft** mimicking birds and bats. The researchers are using advanced structures that move like bone and muscle. The vehicles can morph into a range of configurations with varied flight properties. These micro air vehicles maneuver through previously unreachable areas. It'll put heat on anyone trying to hide.



2 Computer & Information Science & Engineering

Can interacting with a virtual human — like in games and movies — make you a better communicator? Benjamin Lok and a team of doctors, educators and computer scientists think it will. The team has developed a training simulation

for medical students to practice their interview skills on a virtual patient. It lets the students interact with patients of different races, ethnicities, ages, gender and weight in a variety of scenarios. The system is blazing through medical schools in the U.S. and the United Kingdom. **Training doctors to be good listeners** — that's hot.

3 Chemical Engineering

Tanmay Lele and graduate student Robert Russell are developing a novel electromechanical device that mimics the effect of blood flow on vessel walls at vascular network splits and curvatures — the predominant place of plaque buildup in arteries. By culturing cells from blood vessels on top of the strained polymer membrane, researchers can visualize in real time how mechanical strain controls cell movement. This work will provide novel insight into the mechanisms of plaque and may lead to the development of new biomechanical devices for **treatment of cardiovascular disease**.

6 Nuclear & Radiological Engineering

Finding potentially deadly cracks in the space shuttle foam layer, locating items hidden in walls, **detecting buried land mines** — these things are all done by an X-ray imaging technique developed by Edward Dugan and team known as Radiography by Selective Design. It utilizes backscatter radiography to pick up objects hidden within something solid. It can also detect corrosion on oil and gas pipelines. It even has applications for homeland security, as researchers believe it can detect fiber optic wires, computer chips and anything else hidden in walls — this is sure to make terrorists sweat.

7 Agricultural & Biological Engineering

If there's no sunlight how does a seed know which way is up? That's a question assistant professor Melanie Correll is trying to answer through a series of experiments on the International Space Station. It's more than a question of direction, it could be a **question of survival for astronauts**. This research will help scientists understand how plants grow and respond to different levels of light and gravitational acceleration in space and on earth. The results will also help NASA scientists grow plants for a plant-based life support system for long-term space missions.

8 Civil & Coastal Engineering

Tired of the congestion clogging the roadways? Lily Elefteriadou and an interdisciplinary team at the new center for congestion mitigation are working on strategies to **reduce your morning commute**. They're also looking at rail and shipping congestion and developing strategies to streamline emergency evacuations and response. With funding from the U.S. and Florida departments of Transportation, the center hopes to come up with innovative and sizzling solutions to get you where you want to go — faster.

9 J. Crayton Pruitt Family Department of Biomedical Engineering

Brandi Ormerod is determined to understand how stem-cell strategies could be used to **treat neurodegenerative disease** like Parkinson's or Alzheimer's. By identifying these signals, neuron production may be able to be stimulated in other diseased or injured areas of the brain. Ormerod is also studying how transplanted stem cells would behave in the diseased brain, which always exhibits neuroinflammation.

10 Materials Science & Engineering

Professors Laurie Gower and Elliot Douglas are attempting to **create bone**. Right now, surgeries like spinal fusion use cadaver bone or bone removed from the patient's own hip — but both techniques have problems. Gower and Douglas have developed a way to create artificial bone with the same nanoscale structure as natural bone — something that's never been done before. Nanoscale structure is responsible for bone's unique mechanical and biological properties. The artificial bone should help eliminate the need to harvest the patient's bone — which can be more painful than repairing the actual problem. They will soon begin testing the mechanical and compatibility properties of this artificial bone to make sure it can match natural bone.

11 Environmental Engineering Sciences

UF, the Hinkley Center for Solid & Hazardous Waste, and the EPA are working to determine if **medicine-infested landfills** are something to steam over. For decades, the recommended way to get rid of unused medicine was to dump it down the drain or flush it down the toilet. However, research shows in doing so, pharmaceuticals are entering the environment and impacting fish and other species with unknown risks to human health. States are now recommending disposal in household trash, which ends up in landfills. Leachate, the liquid from landfills, is treated by local wastewater treatment plants — the same location drain water is treated. It is possible for the pharmaceuticals to leave the landfill and enter the environment anyway, but what happens to the medication waste is a hot topic.



From 349 Weil Hall

A Letter From The Editor

Spring in Gainesville is beautiful. The green Reitz Union lawn is a perfect place to study or sun between classes. The robin's-egg-blue skies make you wonder why people go to school anywhere else. The nights are still cool enough to leave a few windows open.

As I revel in this splendor and start to crack my windows on one of these perfect nights, I see a glimpse of Danny Rolling and Ted Bundy and the murderous savage at Virginia Tech. I shut and lock the windows and turn on the A/C.

For many years the Virginia Tech College of Engineering has been one of Gator Engineering's rivals — now it has unwillingly become shackled to UF through a blood-stained legacy. At the University of Florida we know the fear and the pain of murder in a college town.

It has been 17 years since the Gainesville student murders. For a lot of UF faculty and staff the memories

are too easily recalled. The people of Gainesville reluctantly share this very close and yet gruesome brotherhood. As the Virginia Tech family mourns with the prayers and blessing of a saddened country, they are also ushered into a members-only club of sorrow.

Then my mind turns to the senselessness — 32 people gone. What was the last conversation they had with their girlfriend, boyfriend, wife, husband, roommate or mother? The arduous hours studying for exams that now don't matter. All the money spent on an education that will never be used.

What can be learned from this — is there even anything? I don't want to learn, hear or see anymore about the man that blackened the VT campus.

And then, like a red traffic light turning green, I see the signal to move forward. I think the world is good and so are most of the people in it. Yes. They are good. Then I focused.

I focused on the magazine's pages the staff and I have been crafting since January. The purpose of this issue is that inherently engineers are good. People are good. At the end of the day, isn't that all that does matter? That we are good people our children can be proud of. Like the engineers in this issue, in the College, all around the country and all over the world — they are helping people. Because it's good to help.

That last conversation with a wife, a husband, a girlfriend, a boyfriend, a roommate or a mother — it matters. The arduous hours of studying — they matter. The money spent on education — it matters. If we go through life not doing, because of what might happen, could happen or did happen, then we are not living.

With broken hearts, let's move forward and do good.



Nicole Cisneros McKeen

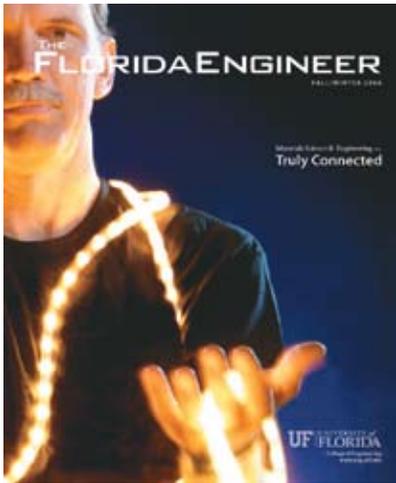
We Remember

Whether it's a tragedy, a birthday, a political statement or a marriage proposal, when you're in Gainesville the 34th Street Wall is still the poor man's billboard. UF's Library West has archived periodic photos of the 34th Street Wall. To see the metamorphosis of the Wall go to www.thefloridaengineer.eng.ufl.edu



Dear Florida Engineer,

Letters To The Editor



She's a W-O-M-A-N

I applaud your effort to bring women toward the foreground in our field; we are more represented now than in the past, but unfortunately this is still a male-dominated field. Your article about Dr. McNair was on point, both for what it did say, and for what it didn't say. I wish her well.

Elizabeth Webb, Ph.D., PE (B.S. ABE '94)

Dear Elizabeth,
Isn't she great? She's down-to-earth, a great mom and definitely seems to be holding her own. — Ed.

The cold, hard truth

As a proud graduate of UF, I was disappointed in the overall coverage of materials science at UF. When talking about the early days, you have to mention Drs. Reed-Hill, Guy, Verink, Gould, Hren, Hummel and others who made the Department so prominent. Also many of the early graduate students became “movers and shakers” in the world of materials science.

John W. Koger (Ph.D. MSE '67)

Dear John,
Know what the problem was? Too many great people, and not enough pages. Thanks for mentioning these Gator Engineering Greats. — Ed.

A little somethin' special

It seems to me that most engineers are too busy to consider how we got to this stage of our technical thinking, where it all started, who or what initiated technical analysis, what credit goes to those in earlier centuries who made breakthroughs, and where we are headed.

I am hoping that you can compose a program that will cause us to sense, feel and understand where we are, how we got here, and where we are going.

I know you are busy, but I would be delighted if you could consider this suggestion. I still remember a thought that was presented during my freshman week in 1943: *a college education is not something to make a living on — it is something to live with.* This idea has stuck with me ever since, and it is in this spirit I ask that you consider my suggestion.

John Marsh (B. ME '48)

Dear John,
So, we know this letter was originally meant for Dean Khargonekar, but we liked it too. Mostly we liked that you haven't forgotten your freshman week. — Ed.

Show me the money...or not

I noticed in your “Letter From The Editor” that you mention the need for more alumni interaction. We have been struggling with the same issue, with limited success. It seems that alums tend to think that interaction with their alma mater means giving money. We believe that there are significant mutually beneficial opportunities for all parties — students, faculty, alumni, business. It's not easy to recast how people think about a situation that has been developed over many years of experience; however, it is well worth the effort.

Andy Hiser (B.S. MSE '90)
School of Interior Architecture
University of North Carolina at Greensboro

Dear Andy,
We feel the same way, and that's why we felt The Florida Engineer needed a friendlier editorial voice. We want people to feel connected to Gator Engineering, and hopefully that warm and fuzzy feeling dripping from our pages will inspire people to give back when they can. — Ed.

Something got your goat? Did you read an article and proclaim, “I AM A GATOR ENGINEER AND DARN PROUD OF IT!”? Are you wondering why the New Engineering Building is still called the New Engineering Building after 10 years?

We don't claim to have all the answers, but we've got people. Like a sweaty kid stuck at summer camp, we really want mail. We don't need a care package — just a letter.

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Worth A Thousand Words

What do you get when you combine National Championship Fever, strategically designed wearable propaganda, and a Friday afternoon? More excitement than free food on the Reitz Union Lawn.

When the Gator football team went to Arizona in January, UF loaded up the publicity bandwagon. The mobile exhibit included a set of air-cooled shoulder pads, Gatorade and Gator Engineering's NaviGATOR. We flagged down the caravan just in time and sent 100 Gator Engineering T-shirts to give away.

The T-shirts boasted Gator Engineering's success — *"Since 1996 Gator Engineering has won 14 national titles. Hey Florida Football, welcome back to the spotlight."*

A little conceited? Maybe. But It's Great To Be A Florida Gator — *and* a Gator Engineer! 

From left to right — Associate Dean Jonathan Earle, Associate Dean Cammy Abernathy, Dean Pramod Khargonekar, Associate Dean Tim Anderson.



Photo by David Blenkinship



Are You A Good **gator engineer?**

1. Do your children know where you went to college?

- a. I don't have children, but I do invite the neighbors over and indoctrinate their kids.
- b. You mean my kids Albert and Alberta?
- c. Since I moved to Columbus, Ohio, I try not to talk about it much — I don't want my house to get egged again.
- d. Well, they know I went to school in Florida, but they wouldn't know a Gator from a Seminole. It's shameful, I know.

2. In what year will the College celebrate its 100th anniversary?

- a. 2017
- b. I don't do anniversaries. Sentiment is for sissies.
- c. 2010
- d. Didn't we do that already?

3. Put these Gator Engineering deans in chronological order.

- | | |
|-----------------------|----------------------|
| a. Joseph Weil | g. Win Phillips |
| b. Robert Uhrig | h. John Benton |
| c. Wayne Chen | i. Blake R. Van Leer |
| d. Pramod Khargonekar | j. Percy Reed |
| e. John Nattress | k. Thomas Martin |
| f. Jack Ohanian | |

4. Name that landmark...



5. Have you ever been to the Gator Engineering Tailgate?

- a. This is a trick question, they start this fall.
- b. Sure...lots of times.
- c. This is a trick question, they start this fall.
- d. Both A and C.

6. How many Gator T-shirts do you own?

- a. I sort laundry into three piles — lights, darks and Orange & Blue.
- b. If I dug around long enough I could probably find that one I bought my freshman year when the Hub was still the Hub.
- c. Does it count when you get blueberry stains on an orange shirt?
- d. I lost them all in a bet gone bad.

7. Which of these is NOT an actual Gator Engineering department?

- a. Department of Nuclear & Radiological Engineering
- b. The J. Crayton Pruitt Family Department of Biomedical Engineering
- c. Department of Coastal Deployment Engineering
- d. Department of Computer & Information Science & Engineering

8. Who was the famous author quoted in *From 300 Weil Hall?*

- a. C.K. Smoley
- b. Hunter S. Thompson
- c. Albert E. O'Neill
- d. Kurt Vonnegut

9. What makes you a good Gator Engineer?

- a. I've already filled out that nifty postage-paid reply card to tell you about the wonderful things I've accomplished. I'm glad you didn't want a Don Ho impersonation, though. My coconuts are at the cleaners'.
- b. I study *The Florida Engineer* and then quiz my children.
- c. I check www.eng.ufl.edu daily.
- d. All of the above.

10. Did you know that *The Florida Engineer* really wants to hear from you?

- a. Yes. I wrote in last winter and I'm getting ready to write again — I love those dang postcards.
- b. Really? Why? What are you up to?
- c. No way, they just want my money.
- d. You always say that, but you're just being polite, right?

Answers — 1. Well, we sure hope you said A or B...; 2. C; 3. H, J, I, A, K, E, B, C, G, F, D...if you got all those right, you deserve some kind of prize. We're not offering a prize, but you deserve one nonetheless...; 4. Touch the Sky sculpture — near the Chemical Engineering Building; 5. D; 6. A is the answer we're looking for; 7. C; 8. D; 9. D; 10. A, of course — keep those postcards coming.



A view of Weil Hall from The Swamp's south endzone

STRATEGIC GOAL

TOP 20/10 BY 2010

2010

among **all** colleges of engineering in the nation

among **public** colleges of engineering in the nation

The Capital Campaign will help support the faculty, students and facilities needed to achieve this goal. Our public campaign begins this fall.

SHOWCASING THE POSSIBILITIES

CAMPAIGN KICKOFF
CAMPUSWIDE SYMPOSIA AND EVENTS
SEPTEMBER 28, 2007

Come celebrate Gator Engineering when we showcase the College like never before. Join us for the engineering Capital Campaign Kickoff at these events.

9:00 a.m. – 3:00 p.m.

Department Open Houses

10:00 a.m. – 11:00 a.m.

Florida Tomorrow Keynote Presentation

11:30 a.m. – 2:00 p.m

Luncheon

Discussion Panel: *Florida Tomorrow Begins Today*

Student Video Contest Winners

Student Research Showcase

As the date gets closer look for more information

www.eng.ufl.edu

352.392.6795

UF | **FLORIDA**
TOMORROW
THE CAMPAIGN FOR THE UNIVERSITY OF FLORIDA



"My skill carries with it the obligation to serve humanity by making the best use of Earth's precious wealth."

— The Obligation of an Engineer

UF UNIVERSITY of
FLORIDA