



# THE FLORIDA ENGINEER

WINTER 2008

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### **THE STARBUCKING OF UF**

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# THE FLORIDA ENGINEER

WINTER 2008

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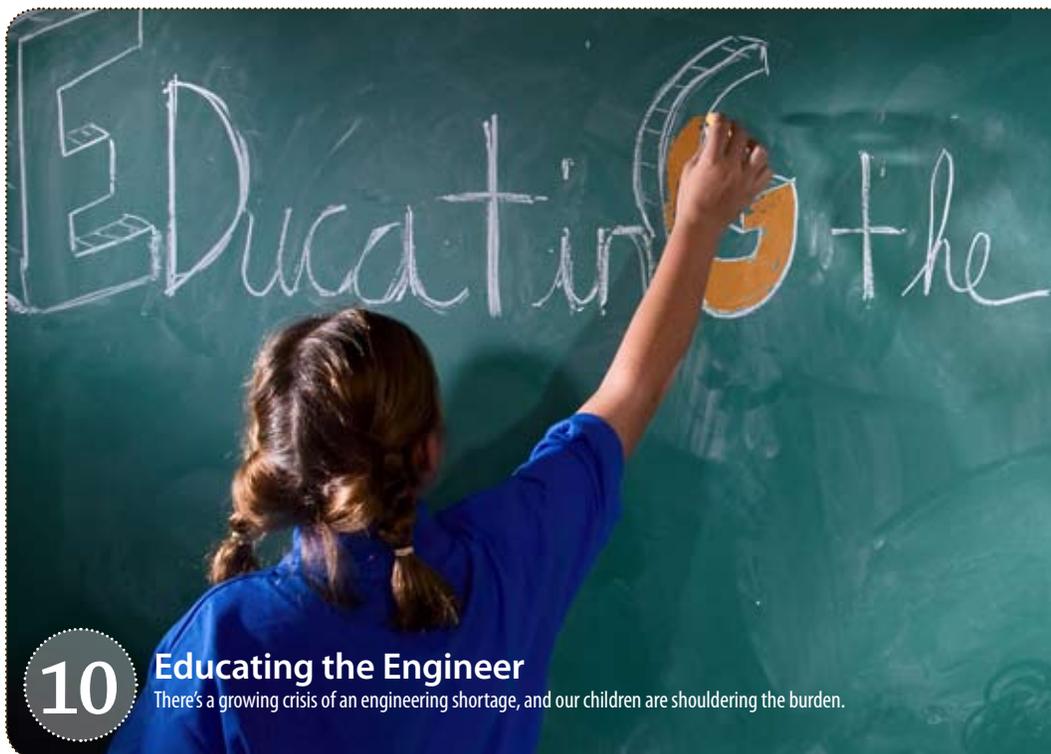
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# FROM 300 WEILHALL

**A** core mission of any large public research university — the University of Florida being an excellent exemplar — is undergraduate education. Indeed, in large part the rationale for public universities' state support is based on the undergraduate mission.

There are two major challenges in fulfilling this mission: How do we deliver a high-quality, personalized undergraduate educational experience to every student? And how do we design the curriculum that will serve students for a 50-year (or longer) career?

These questions take on special significance in the setting of engineering education. As technological advances become increasingly interwoven into our daily life, engineering practice is undergoing dramatic changes. Globalization is a powerful trend that has impacted large swaths of engineering. And we are likely at the beginning of this trend rather than the end. While there is a great deal of discussion about these issues at many universities, there are more questions than answers.

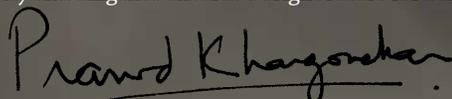
It is clear we need to provide adequate resources and attention to the needs of our undergraduate students. Our retiring associate dean of student affairs, Jonathan Earle, is the best proof and a tremendous role model of how we truly serve the needs of our students. He has also been a major innovator in building sustainable and highly successful programs for increasing diversity in our College. While his retirement is a major loss, it is an opportunity for us to renew our commitment to ensure a high-quality educational experience for our students.

Our College has a number of curricular programs allowing our students to gain an outstanding education, including opportunities to engage in undergraduate research with world-class faculty.

Let me close with a thought-provoking remark by Albert Einstein:

*"It is little short of a miracle that modern methods of instruction have not already completely strangled the holy curiosity of inquiry...I believe that one could even deprive a healthy beast of prey of its voraciousness if one could force it with a whip to eat continuously whether it were hungry or not..."*

Let us redesign our curriculum to light the fire of curiosity in our students. Curiosity coupled with creativity and diligence ensures a bright future for our students and thereby for our College and the University.



PRAMOD P. KHARGONEKAR, Dean



DAVID BLANKENSHIP

# NEWSFLASH

GATOR ENGINEERING IN THE NEWS

JUNE 1, 2007 — DEC. 1, 2007

## MUSSEL VS. MAN?

Georgia Gov. Sonny Perdue is charging that the cause of some of his state's recent water problems may have been caused by water being allowed to flow to endangered species in Florida, including mussels. Environmental Engineering Chair **JAMES HEANEY** commented on water conservation efforts in a Reuters article surrounding the controversy.



## AN END TO EPILEPSY?

A team of UF researchers is working on a device that interprets brain signals and enables neurons to connect — something they hope will correct epilepsy and paralysis. The team includes College of Medicine assistant professor **JUSTIN SANCHEZ** (Ph.D. BME '05) and several Gator Engineering researchers. United Press International featured the story on July 25.

## NUCLEAR ENGINEERING'S FRESH FACE

With nuclear engineering on the brink of a revival, companies are hiring and handsomely compensating newly-minted college graduates in order to keep the plants operational. The *St. Petersburg Times* caught up with Nuclear & Radiological Engineering chair **ALIREZA HAGHIGHAT** for this June 10 story.

## INDEPENDENT LIVING

Thanks to Computer & Information Science & Engineering professor **SUMI HELAL**, there is a house that takes your temperature, blood pressure and heart rate, then immediately transmits the data to your doctor — making it possible for the elderly to live independently. This research was featured in the *Miami Herald* and the *Washington Post* on July 25.

## COUNTING FRUIT BEFORE IT'S PICKED

A team led by Agricultural & Biological engineer **DANIEL LEE** is developing a technology that will allow an electronic system to detect and count fruit still on trees. PhysOrg.com, a Web site devoted to science, engineering, technological and nanotechnology news, featured this breakthrough on June 21.



## BUG-EYED DISCOVERY

Chemical engineer **PENG JIANG** is developing unusual new anti-reflective and water-repellent coatings that could make solar cells more efficient and self-cleaning. He gets his inspiration from insect eyes and wings. United Press International picked up this story on Oct. 23.

## ONE PAINFUL CELL PHONE BILL

**JOHN SCHERT**, director of the Hinkley Center for Solid and Hazardous Waste Management, and his team are using a pair of simulated landfills to determine if discarded cell phones, computers and other electronics leak lead into the Earth. This story was featured on CBS News on Nov. 10.



## WORKING ON SCHOOL

When jobs are hard to find, many people turn to graduate school instead, according to a recent study by the Florida Board of Governors. College of Engineering Dean **PRAMOD KHARGONEKAR** was interviewed about how this phenomenon has impacted Gator Engineering in Nov. 21 articles by the *Palm Beach Post* and the *South Florida Sun-Sentinel*.

## THE PRESSURE IS ON

The use of a chemical containing arsenic in pressure-treated wood has declined significantly since 2004. Now the problem lies in the disposal of the pre-2004 lumber. **JOHN SCHERT**, director of UF's Hinkley Center for Solid and Hazardous Waste Management, and environmental engineer **TIM TOWNSEND** are investigating the issue. ScienceDaily featured this research on Aug. 29.

## HEAVY LOAD

Truck drivers put strain on bridges by crossing them in spite of exceeding the weight limit. Civil & Coastal Engineering Chair **JOSEPH TEDESCO** weighed in on the topic in an *Ocala Star-Banner* article on Oct. 21.



## VROOM, VROOM, VROOM

The UF Society of Automotive Engineers formula team won sixth place out of 140 international competitors at the Ford Proving Grounds in Romeo, Mich., on May 20. The team is pictured on the left with Dean Pramod Khargonekar in the driver's seat.

watch a video 

read full articles 

# END OF AN ERA BEGINNING OF *a legacy*

BY STEPHANIE GARRY

WHEN JONATHAN EARLE CAME TO UF GRADUATE SCHOOL with a wife and three children, he told his adviser he would make it quick. “I don’t have time to waste,” Earle recalled telling him. More than 20 years later, he’s finally leaving a distinguished career in research and administration.

**E**ngineering student Elena Briz wants to keep Jonathan F.K. Earle from retiring with 5,000 signatures on a petition. Margie Williams, his executive secretary for 12 years, who will miss him as much as anyone, wondered who she would give the petition to. “Nobody’s forcing him!” she exclaims.

Quite the opposite. Williams felt his retirement creeping up but didn’t want to acknowledge it.

Pramod Khargonekar, dean of the College, is still trying to figure out how to cope with the loss. He won’t use the word “replace.” That can’t be done.

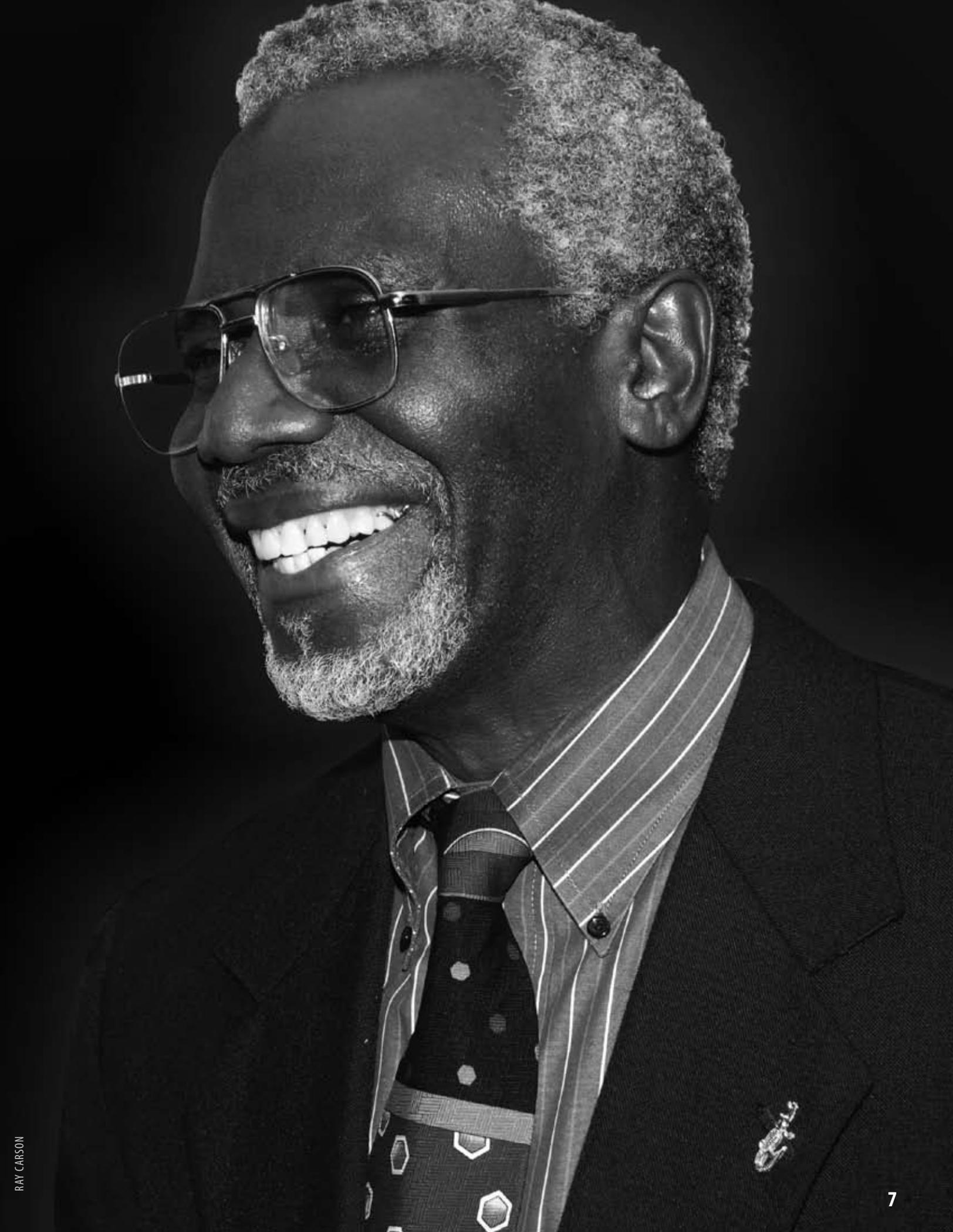
Earle, 67, is a spiritual and sincere man who starts every morning with exercise and prayer. Like most careers, his has been driven by chance and opportunity: Warm weather and proximity to his favorite sister brought him to Gainesville. But he’s served the

College like they were meant to be, building a student support system that has helped would-be engineers overcome obstacles to graduation.

“I never thought of being a dean,” says Earle, sitting formally in a Spartan office filled with plants and plaques from grateful students. “I never intended to be in academia, but things change.”

Earle speaks slowly in a melodic Jamaican accent. He would never suggest he doesn’t have time for you. He invites students to his home for graduation and Christmas parties, and sings at commencement and for birthdays around the College. When Williams’ son was struggling with fourth-grade math, Earle volunteered to tutor him on Saturday mornings without even being asked.

“These are the things you never forget,” Williams says.



Born the youngest of 11 children in Jamaica, Earle grew up on a farm where the cows called for milking early every morning. His father, a carpenter, always had tools handy, and they fascinated little Jonathan. He liked to tinker — the stamp of the future engineer.

Earle led the student government at his high school in Kingston, where troublemakers were punished with canings and chapel was twice a day. For college, he faced a choice: Stay in Jamaica and become a doctor, or go to the University of London to study engineering? Looking for an adventure, he chose England.

After graduation he worked for the Thames Water Authority, where a tea lady pushed a cart by the drafters' desks every morning and afternoon. He took his sketches home so that he could get a new assignment more quickly.

"I was having a blast," he said.

Earle went back to school to keep a promise to himself. But coincidence brought him, his wife and three children to UF, where he earned a doctoral degree and a spot on the faculty in 1987. He helped found a research lab that gleaned energy from solid waste. Student affairs piqued

his interest when his lab assistants kept coming to him for help they weren't getting from the College.

As associate dean for student affairs, he founded revolutionary programs such as STEPUP, which provides an intense introduction to engineering that helps minority students defy drop-out statistics.

"What we have today didn't exist before he started building it piece by piece," Khargonekar said.

Earle says that his work has never been a burden. His parents taught him not to do anything he doesn't enjoy.

So it seems irreconcilable that he's ready to retire.

Earle explains with Robert Frost's two roads diverging. He doesn't yearn for the other path, "The Road Not Taken." Instead, he's learned to appreciate the present moment.

"I feel very relaxed about it. People keep asking me, 'what are you going to do when you retire?' I'm going to retire," he says resolutely. "I believe in being as fulfilled as possible in whatever you're doing."

As Khargonekar says, "I will miss his wisdom." 🐼

I BELIEVE  
IN BEING AS  
FULFILLED AS  
POSSIBLE IN  
WHATEVER  
YOU'RE DOING.

## A Legacy IN THE MAKING

Earle wrote his dissertation on the use of photosynthetic bacteria to treat animal waste.

He helped design a lab in the Department of Agricultural & Biological Engineering that searched for alternative energy, inspired by the oil crisis of the 1970s and 1980s.

Solid waste became an issue also, especially in 1987, when a trash-filled barge bounced from port to port, searching for a dump. Earle traveled to Tallahassee to help pass the Solid Waste Act of 1988, which set goals for recycling and funded research.

In 1992, he became associate dean for student affairs. Advising for all departments was centralized in his office, with a staff of just Earle and his secretary. "After my first semester, I thought, 'this is crazy,'" he said.

STEPUP, his most acclaimed program, started in 1994 with just five students. At the time, only 25 percent of minority students graduated, compared to 40 percent of all students. Now, 60 percent of STEPUP participants graduate, higher than the college-wide average of 52 percent. Earle also worked on minority-retention issues across UF, establishing programs in 1998 and 2005 respectively.

In November, Earle was one of 11 people nationwide to receive a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. He received the award in a White House ceremony. He and the other awardees also met with President George W. Bush in the Oval Office.

I was humbled by it because I didn't do this work for the award. I was just thinking about how to make my students successful. For me, the award is really a way of saying *you made your students successful.*

# WHO INSPIRES YOU?

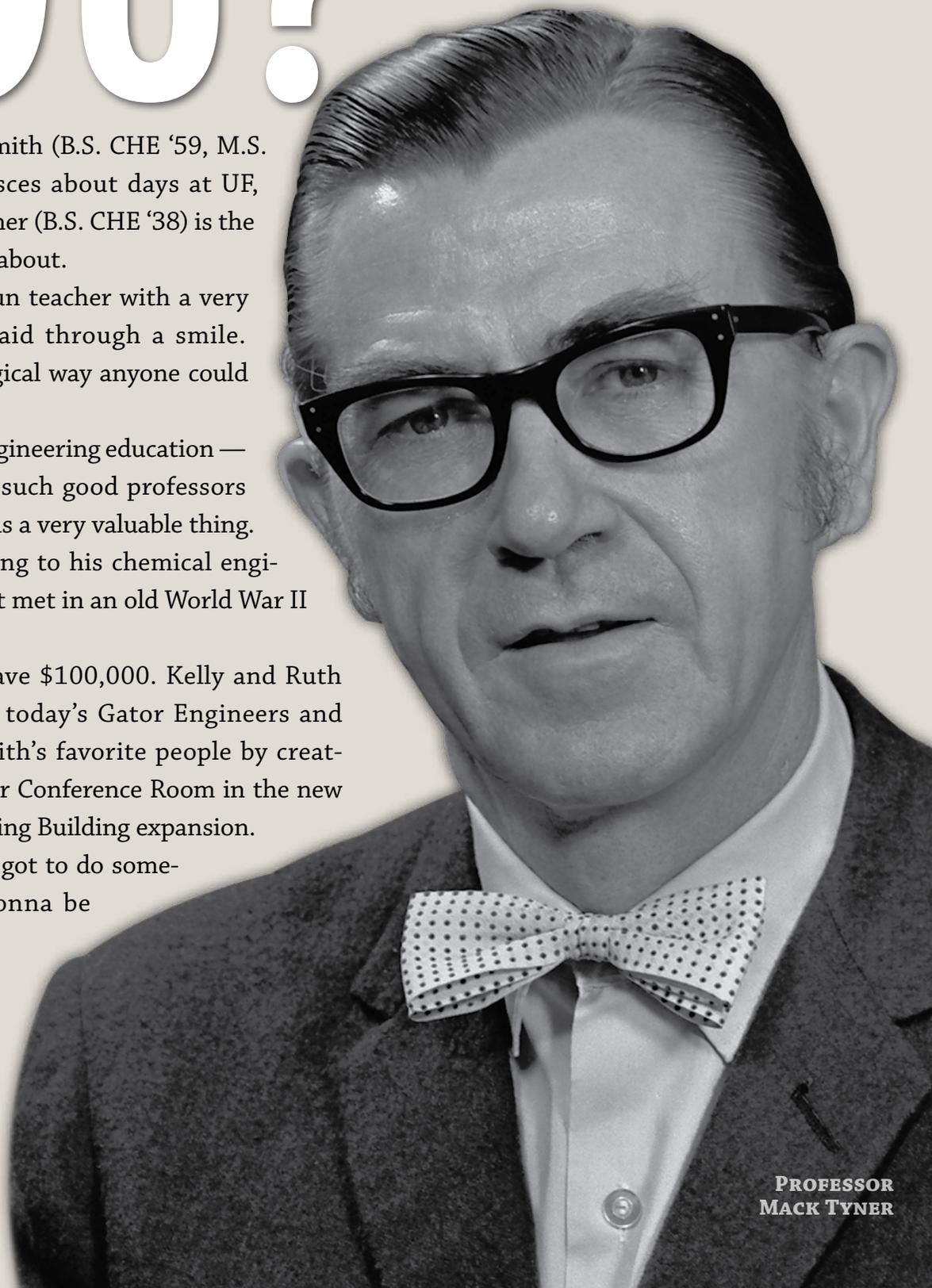
When Kelly Smith (B.S. CHE '59, M.S. '61) reminisces about days at UF, professor Mack Tyner (B.S. CHE '38) is the first thing he talks about.

“He was just a fun teacher with a very dry wit,” Smith said through a smile. “He taught in a logical way anyone could understand.”

Smith said his engineering education — and being around such good professors and students — was a very valuable thing. He remembers going to his chemical engineering classes that met in an old World War II hangar.

And so Smith gave \$100,000. Kelly and Ruth Smith’s gift helps today’s Gator Engineers and honors one of Smith’s favorite people by creating The Mack Tyner Conference Room in the new Chemical Engineering Building expansion.

Says Smith, “We got to do something if we are gonna be good Gators.”



## INSPIRED?

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**PROFESSOR  
MACK TYNER**



# America, meet your engineering crisis.

Nancy Padron was destined to be an engineer.

It started well enough. Padron's mailbox was stuffed with acceptance letters from UF, Baylor and Georgia Tech. She made the wait list at MIT. Her father is a doctor, her mother is a lawyer and her stepfather is a mechanical and aerospace engineer. She got a B in calculus — a notoriously difficult class among even the brightest first-year engineering students. Science and math are tattooed on her DNA.

“I got A's and B's,” said Padron, now a sophomore at UF. “It [engineering] was never a hard thing for me. It was something I was good at. I had the technical skills for it. I was intelligent enough to comprehend the material.”

But in November of her freshman year, Padron decided she would transfer to the College of Fine Arts and major in sculpture. She said she changed her major because she “just wanted to wake up happy with what she was doing.”

There have been countless articles written and millions of dollars spent on research all pointing to unprepared students, retention issues, outsourcing and foreign education. And there's one common denominator: an education system that no longer propels students into science- and math-related fields.

# ENGINEER

by Nicole McKeen

**E**ducating the next generation of engineers has never been more important — or more difficult.

ANDREW STANFILL

“There is a huge problem,” said Pramod Khargonekar, dean of the UF College of Engineering. “A large number of talented students who might have taken a liking in math or science are turned off pursuing those subjects.”

Khargonekar said he believes social pressures and influences, especially on girls, makes it difficult for children to show an interest in math and sciences.

---

## “Since when has it become a crime to be smart?”

“The word *geek* — which I take great offense to — is a symptom of underlying social forces at work,” the dean said. “Since when has it become a crime to be smart? Why is it socially unacceptable to be good at math? Why is it we don’t hold up these students as great talents, rather than [allowing them to be] sneered at as geeks? In some sense I think we as a society have simply given up on science and math. A nation that can put a man on the moon...does not have the same determination it used to.”



**A LIFETIME AGO**  
 Yesterday's Gator Engineers aren't so different from current students.

**L**ike an old family photograph, the determination of 50 years ago has faded. "There was a tremendous explosion in communications technology," Khargonekar said. "The Internet made it possible to collaborate with people all over the world in a far more effective manner. The other thing that changed is a rise in engineering capacity in other nations, like the availability of computer-aided design tools which enabled engineers anywhere to do a higher level of work than was possible before. A person in India is using the same tools as a person in California; that was a great equalizer."

The National Science Foundation and the National Academy of Engineering have the same prediction: If something isn't done soon to better prepare and interest the nation's children in science and engineering careers, there will be serious consequences.

Perhaps the most alarming statistics come from a report called *Rising Above the Gathering Storm* by the National Academy of Sciences, National Academy of Engineering and Institute of Medicine.

The report calls for initiatives to:

- 1) Increase America's talent pool by vastly improving K-12 mathematics and science education.
- 2) Sustain and strengthen the nation's commitment to long-term basic research.
- 3) Develop, recruit and retain top students, scientists and engineers from both the U.S. and abroad.
- 4) Ensure that the United States is the premier place in the world for innovation.

The 2007 report ends with a list of "worrisome indicators" that include the numbers of engineers being produced by China, India, Japan and other countries. The report states that in 2004, China graduated about

500,000 engineers and India graduated 200,000. America graduated 70,000.

Vivek Wadhwa, a faculty member at Duke University's Pratt School of Engineering and co-author of *Framing the Engineering Outsourcing Debate: Placing the United States on a Level Playing Field with China and India*, says those numbers are fuzzy and nothing more than scare tactics.

"It seems to happen every 10 to 20 years and it turns out there is no [engineering] shortage," Wadhwa said. "People are playing with the numbers for their own reasons."

**"This is a national problem and has to do with how we teach freshmen as much as with how we teach high school students."**

**W**adhwa reasoned it's cheaper for technological executives to hire foreign employees. Thus, lobbyists hired by technological firms push for more H-1Bs (temporary worker passes allowing foreigners with the equivalent of a U.S. bachelor's degree into the country), and that means cheaper labor. Wadhwa also said some foreign engineering degrees are not equivalent to a degree from an accredited U.S. engineering school.

Still, even if international engineering education isn't America's enemy, it's possible the nation is its own enemy.

Science-based organizations have concerns about the future of science and engineering education. The 2006 National Science Foundation Science and Engineering Indicators report stated many college freshmen lacked

adequate preparation for higher education and needed remedial courses to transition into college. The report also stated the foundation's concerns about many U.S. math and science teachers not being qualified to teach those subjects. The report goes on to say college graduates who became teachers have somewhat lower academic skills on average than those who do not go into teaching.

"There is a mix of teachers in our schools who are not prepared to teach science and math," Khargonekar said.

But he's not complaining. He's not blaming teachers or the state education system. He sees a problem that Gator Engineering can help mend.

The College has a plethora of programs geared toward retaining students and training teachers to use hands-on projects in their classrooms.

"We have set off the fire alarms in Weil Hall more than once demonstrating the principles of physics [experimenting with heat and pressure] to high schools teachers and students," said Deb Mayhew, assistant director of student affairs, who also manages the College's outreach programs. "We try to connect with middle and high school kids early on and let them know that math and science are important. So many things start to distract them during their adolescence. When they see things like the SAE [Society of Automotive Engineers] cars and the wind tunnels, it helps them to see what engineering is in a practical way."

**B**esides the hands-on-learning clinics the College offers to high school teachers and students, Gator Engineering is preparing an attack on student retention. Nationally, only about 50 percent of students who enter college expecting to major in engineering actually graduate with an engineering degree — most of the drop-off happens in the freshman year. Therefore, seeing engineering for what it is instead of through the glazed eyes of a freshman may be the key to keeping kids on track.

"This is a national problem and has to do with how we teach freshmen as much as with how we teach high school students," said Cammy Abernathy, associate dean for academic affairs.

Gator Engineering has tried to address this by clustering students in engineering-only sections — including some engineering-women-only sections — of a few fundamental courses, Abernathy said. This helps the students develop community and helps to keep them from feeling isolated.

Materials Science & Engineering doctoral student Samesha Barnes was a chemistry teaching assistant

#### THE FUTURE

Today's engineering students are studied almost as much as they study.



for three semesters before the University cut the program's funding. The program provided a select group of engineering graduate students with extremely competitive leadership awards to teach core courses like chemistry, calculus and physics to first-year engineering students.

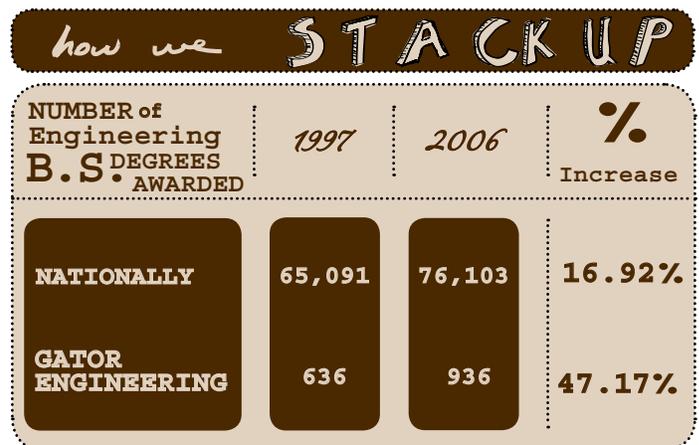
"They wanted to see if matching the young engineers with Ph.D. students would help the retention rate of engineering freshmen," said Barnes, whose students often tell her they hated chemistry and didn't get it until taking her class. "It was one of the greatest experiences of my life."

The tragedy lies in the experiences of all the would-be engineering students who never got the opportunity to participate in a program like the one Abernathy and Barnes describe.

Students like Nancy Padron.

The engineering-student-turned-fine-arts-major said she is confident in her decision to leave engineering, but she still considers herself an engineer at heart.

"If I had been on the fence about switching majors," Padron said, "and engineering classes were more creative and hands-on, I would have thought twice about it." 🐼



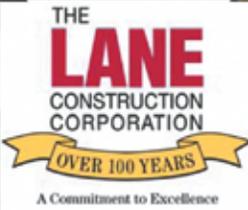
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## AGENT ORANGE

The American Institute of Aeronautics and Astronautics won first place in the Joint Propulsion Conference Student Design Challenge sponsored by the Air Force. The team designed a propulsion system and attached it to a donated airplane kit. The system also provided surveillance.

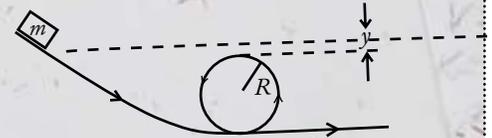


# ARE YOU SMARTER THAN A FRESHMAN?

## PHYSICS 1 TEST QUESTIONS

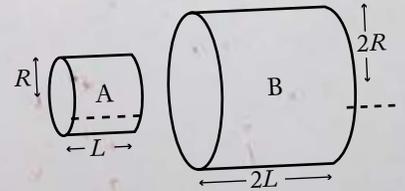
1. A small object of mass  $m$  starts from rest at the position shown and slides along the frictionless loop-the-loop track of radius  $R$ . What is the smallest value of  $y$  such that the object will slide without losing contact with the track?

- a.  $R/2$
- b.  $R/4$
- c.  $R$
- d.  $2R$
- e. zero



2. A and B are two solid cylinders made of aluminum. Their dimensions are shown (hint: note different radii and lengths). The ratio of the rotational inertia of B to that of A about the common axis is:

- a. 4
- b. 8
- c. 32
- d. 2
- e. 16



3. A disk has a rotational inertia of  $6.0 \text{ kg m}^2$  and a constant angular acceleration of  $2.0 \text{ rad/s}^2$ . If it starts from rest the work done during the first 5.0 s by the net torque acting on it is:

- a. 600 J
- b. 0
- c. 60 J
- d. 30 J
- e. 300 J



# GETTIN', DIRTY

E A R L Y

BY AARON HOOVER

# GETTIN' DIRTY EARLY

**U**SED TO BE, UNDERGRADUATE ENGINEERING students hit the books and graduate students devoted their time to the lab. But these days, freshmen, sophomores and upper-division undergraduates titrate fluids, scrutinize microscopic samples and work with Fortune 500 companies from one end of the College of Engineering to the other.

Part of the reason is the growth of formal programs providing hands-on experience for undergraduates. Besides the College's flagship Integrated Product and Process Design program, dozens of undergraduate engineering students participate in the University Scholars program each year. Several Gator Engineering departments have undergraduate research initiatives as well.

More and more faculty rely on undergraduates as volunteer or paid research assistants. For his hurricane research, civil engineering associate professor Kurt Gurley taps six undergraduates to build mock-ups of houses, tow wind-monitoring towers to hurricane landfall sites and tweak software to better suit his experiments' needs.

"All of our students go out in the field," Gurley says, "but we also get a good deal of intellectual input from them."

The benefits cut both ways.

Materials Science & Engineering Chair Kevin Jones says his Department's Research Experience in Materials program, designed exclusively for freshmen and sophomores, cements students' interest in engineering.

"At this time in their college careers, these kids are taking chemistry and physics, and they don't know why yet," Jones said. "If they're working in a lab, they can see the positive benefits. They will get sold on the topic."

The program, supplemented for the first time this summer with a two-week internship at Sandia

National Laboratory, also helps draw students toward materials science and engineering. Says

**IF THEY'RE WORKING IN A LAB, THEY CAN SEE THE POSITIVE BENEFITS. THEY WILL GET SOLD ON THE TOPIC.**

Jones, "it's sort of a recruiting tool for us."

Many — if not most — undergraduate engineers will advance to careers in the private sector rather than academe or research institutions. But whatever their fate, their experience as undergraduates will help.

"Looking back, the biggest thing I got out of it was the soft skills," said Chris Birdsall, a chemical engineer at a major oil company who was a member of an IPPD team in the 1995-1996 school year. "The team building, consensus building, conflict resolution — nowhere else in the engineering curriculum do you acquire these skills."

# GETTIN' OUT OF THE CLASSROOM

Experience is a selling point. These opportunities to explore the outside world before graduation are part of what make Gator Engineering grads such hot-ticket items.



	OPPORTUNITY	DESCRIPTION	FYI
1	<b>UNIVERSITY SCHOLARS PROGRAM</b>	A University-wide program where fundamental research and scholarly activities are explored at the undergraduate level, allowing students to explore how knowledge is created and developed.	This year, 35 Gator Engineering students are part of this program.
2	<b>RESEARCH EXPERIENCE IN MATERIALS PROGRAM</b>	Materials Science & Engineering freshmen and sophomores — 28 of them at the moment — work in the Department's research labs. Each student works for 10 hours per week and gets paid \$10 an hour. Many of these students will go to Sandia National laboratories to learn about nanotechnology through the National Initiative for Nano-Engineering, a two-week-immersion experience.	Currently more than 40 percent of MSE undergraduates are working on research projects.
3	<b>A RESEARCH SUMMER ABROAD</b>	The Department of Industrial & Systems Engineering offers a class called <i>International Industrial Energy Management Consulting</i> . The course, open to undergraduate and graduate students, analyzes the economics and energy of Latin America. This year, the class traveled to Santiago, Chile, to perform an energy audit on an industrial manufacturing facility and report on their findings.	This summer's trip marked the fourth year in a row for this program.
4	<b>NSF RESEARCH EXPERIENCE FOR UNDERGRADUATES PROGRAM</b>	The Department of Electrical & Computer Engineering has a six-year-running undergraduate research program funded by the National Science Foundation — one of the few that has been renewed.	It hosts about 10 students every summer.
5	<b>SUMMER SCIENCE TRAINING PROGRAM</b>	Studying elephant populations or the genetics of beans may seem like an unusual way for high school students to spend their summers, but it was all part of the Summer Science Training Program through UF's Center for Precollegiate Education and Training. The seven-week program pairs high school students with faculty and emphasizes research participation. Several high school students studied in the Department of Agricultural & Biological Engineering.	"UF Summer Science Program students are an exciting and motivated group," said assistant professor Greg Kiker, who teamed with high school student Rohit Thummalapalli. "This opportunity provides a great interaction between biological engineering and the next generation of students."
6	<b>INTEGRATED PRODUCT AND PROCESS DESIGN</b>	About 140 undergraduates participate in more than two dozen projects per year in the IPPD program. Projects range from industrial processes to factory upgrades to commercial and medical products. Student teams have helped Firehouse Subs engineer a better oven for heating sandwiches. They helped Sunbeam build a better coffee maker. They also assisted Dow Chemical with a batch processing challenge and Medtronic Xomed with packaging for a medical nasal sponge.	Companies and other sponsors pay \$20,000 annually to have a team of IPPD students work on a project.
7	<b>COMPETITIVE TEAMS</b>	Investing time and energy in extra-curricular activities gives undergrads unparalleled experience. Gator Engineering offers many opportunities, including the Society of Automotive Engineers, which builds racecars for international student competitions; the micro air vehicle team, which builds 4-inch surveillance aircraft; the SubjuGator team, which builds an autonomous underwater vehicle for a U.S. Navy-sponsored competition; and Team Gator Nation, which builds autonomous vehicles to compete in a U.S. Department of Defense competition.	"Working in a group with stressful situations and different personalities teaches you how to deal with real-world problems. To be successful you have to be competitive," said Paul Flury, now an engineer for Richard Childress Racing, one of NASCAR's biggest teams.
8	<b>INTERNSHIPS &amp; CO-OPS</b>	What better way to get on-the-job experience than on the job? Internships and co-ops are a classic opportunity for students to explore. Gator Engineering is putting a new spin on an old favorite, though — we encourage freshmen to get an internship or co-op after their first year in college. It helps them connect with engineering much sooner than they might have otherwise.	Internships and co-ops are also a great way for companies to begin recruiting future employees. Consider partnering with us to bring Gator Engineering students to your workplace.



# GETTIN' INTO THE LABORATORY

Undergraduates expect to emerge fluent in research and development methods and techniques, but some of the traits they gain — though less quantifiable — are ultimately what will make them engineering powerhouses.

## INTERACTION

Textbook equations and classroom examples are one thing, real-life experiments quite another, as chemical engineering junior **KYLE FISCHER** is learning.

Fischer, 20, also a University Scholar, is studying bacteria used by municipalities to scour nitrogen from wastewater. If the nitrogen is not removed it can spur algae and plant growth in rivers and lakes. When the algae and plants die, the decomposition process can rob water bodies of oxygen, killing fish and other aquatic life. For this reason removing nitrogen and other nutrients is a priority for water treatment managers.

Some of the bacteria are more efficient than others. The project's goal is to determine whether a specific gene is responsible for the added efficiency — with the eventual goal of propagating bacteria exclusively with that gene.

One of Fischer's responsibilities is to grow and monitor the bacteria over time, not as easy as it sounds. "Growing the bacteria and other work can take 15 or 20 hours per week, on a good week when there's lots getting done," he says. "On a bad week, the bacteria don't grow, and things don't get done."

Learning to keep the research moving ahead while dealing with that and other hitches has been eye-opening. "In the lab you have to realize that not everything is theoretically perfect," Fischer says.

## PATIENCE

**MARGO MONROE**, a senior in materials science and engineering, works in a lab devoted in part to biomaterials. As part of a project to craft artificial bone, her job is to modify gold-coated silicon wafers to bond with collagen, a fibrous protein that makes up connective tissues in the body.

"I'm trying to modify a not-originally biocompatible component to make it biologically compatible," says Monroe, 21.

The work involves cleaning the wafers and stamping them with a layer of material that has a natural affinity for collagen. But figuring out the most effective process is tricky.

"You set a goal, and you can't really just jump to that goal. You have to take a lot of preliminary steps," says Monroe, a University Scholar. "You have to be very meticulous, and it takes a lot longer than you would expect an experiment to take."



## ADAPTATION

Civil engineering junior **GEORGE FERNANDEZ** spends most of his spare time with associate professor Kurt Gurley's hurricane research team. So far, he's built electrical components, run wiring, programmed software, and helped to build the large, portable towers used to monitor hurricane wind forces.

Many of his assignments have fallen outside the scope of his civil engineering classes, but for Fernandez, 20, that's the most beneficial aspect.

"I like being forced to think outside the box and apply multiple disciplines of engineering to culminate in a final product," he says. "Civil engineering might be what I study, but there are so many other things out there."



## DISCOVERY

Materials science and engineering junior **ANESIA BURNS** is probing the conductivity of hafnium — a metal used in electrodes and integrated circuits — and other unusual metals as part of her work in professor Simon Philpott's laboratory. For her, research is all about the excitement of the discovery process.

"It's not like when you have a teacher teaching you something that's already been taught to everybody," she says. "It's like you learn something new for the first time before anyone else does."

Burns, 20, says working with graduate students is also helpful, since it's giving her a bird's eye view of the challenges of graduate school. But perhaps her most important discovery so far is that the textbook material counts.

"This summer, I went and did research at the University of Massachusetts at Amherst, where I worked with polymers" she says. "I never saw why organic chemistry was important, but if you want to make a certain compound or polymer, you need to know that information."

## COOPERATION

Mechanical and aerospace engineering senior **Randall Gruby** is helping in the process of testing a microelectromechanical, or MEMS, device designed by the Interdisciplinary Microsystems Group. As a University Scholar, Gruby's role is to measure the velocity along the boundary layer of flow through UF's water-tunnel facility, a contraption similar to but smaller than most wind tunnels. Those measurements will contribute one ingredient needed for calibrating the MEMS device in preparation for its eventual use in measuring skin friction at a flow's boundary for improving aerodynamics.

"It gives you experience working with people," says Gruby, 21. "You can be the smartest kid in the world, but if you don't know how to work efficiently and smoothly and get along with people, you won't accomplish anything."



# FACULTY FACTS



**TIM ANDERSON** / Associate Dean for Research & Graduate Programs / Professor of Chemical Engineering

Anderson received AICHE's Warren K. Lewis award for scholarly contributions to engineering education research and innovation, dedication to career development of new engineering faculty, and stewardship of chemical engineering education.



**ANTHONY BRENNAN** / Professor of Materials Science & Engineering

Brennan received the 2007 Florida Blue Key Distinguished Faculty Award. This award, bestowed by Florida's oldest and most prestigious leadership honor society, has recognized outstanding educators at UF for more than 50 years.



**JOE BREWER** / Industry Professor of Electrical & Computer Engineering

Brewer was elected as a Fellow of the Institute of Electrical and Electronic Engineers for contributions to nonvolatile memory integrated circuit technology and digital signal-processor architecture.



**JENNIFER S. CURTIS** / Professor & Chair of Chemical Engineering

Curtis won the 2007 AIChE *Lectureship Award in Fluidization* for scientific and technical research contributions impacting the field of fluidization and fluid-particle flow systems.



**JONATHAN F.K. EARLE** / Associate Dean for Student Affairs / Associate Professor of Agricultural & Biological Engineering

Earle received a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. This is the first time a UF faculty member has won this award. See page 8 for more.



**YUGUANG "MIKE" FANG** / Professor of Electrical & Computer Engineering

Fang was elected as a Fellow of the Institute of Electrical and Electronic Engineers for contributions to wireless networks and mobile computing systems.



**HUABEI JIANG** / Professor of Biomedical Engineering

Jiang was selected as a Fellow of the American Institute for Medical and Biological Engineering for creative and pioneering work in the imaging and detection of breast cancer and other debilitating diseases.



**MARK LAW** / Professor & Chair of Electrical & Computer Engineering

Law was elected by Iowa State University to receive the Professional Achievement Citation in Engineering, or PACE award, for his clear prominence in engineering.



**STEVE PEARTON** / Distinguished Professor of Materials Science & Engineering

Pearton won the 2007 IEEE Electron Devices Society J.J. Ebers Award for developing advanced compound-semiconductor processing techniques and clarifying the roles of defects and impurities in compound-semiconductor devices.



**WIN PHILLIPS** / UF Vice President for Research / Former College of Engineering Dean

Phillips was elected chair of the Washington Accord. The accord is a multinational, mutual recognition agreement and is the equivalent of an international engineering accreditation system.



**FAN REN** / Professor of Chemical Engineering

Ren was selected by the Electrochemical Society to receive the 2008 Electronics and Photonics Division Award for sustained and pioneering contributions to the development of high-speed compound-semiconductor electronic devices.



**VERNON P. ROAN** / Professor Emeritus of Mechanical & Aerospace Engineering

Roan was selected as a Fellow of the Society of Automotive Engineers for more than 35 years of improving efficiency and reducing emissions through pioneering research, development and demonstration of hybrid-electric and fuel-cell vehicles.



**K. CLINT SLATTON** / Assistant Professor of Electrical & Computer Engineering and Civil & Coastal Engineering

Slatton won a Presidential Early Career Award for Scientists and Engineers for his work on improving estimations of indirect sensing applications. The PECASE award is among the most prestigious national awards a young researcher can receive.



**LIUQING YANG** / Assistant Professor of Electrical & Computer Engineering

Yang received a Young Investigator Program Award from the Office of Naval Research. Her research proposes to take a systems-oriented exploration on the self-configuration, self-optimization and self-adaptation issues of wireless cooperative networks.



DAVID BLANKENSHIP

# WHAT'S GOING ON?

## **NEW FACE, OLD THEME**

The addition to the south side of the J. Wayne Reitz Union came in the form of a welcome center and a new bookstore. It was completed in 2003.

**1936**

**JOHN W. PERLOFF**, B.S. CHE, is retired.

**1949**

**CHARLES H. SAIN**, B.S. CE, has been elected to the Alabama Engineering Hall of Fame. He founded Sain Associates Inc.

**1951**

**ROBERT SHELLEY RUSS**, B.S. CE, is retired from the Florida Department of Transportation.

**JOHNNY B. SMITH**, B.S. CE, owned the eponymous John B. Smith Eng. Inc. from 1968-2000. He is now retired.

**1952**

**DAVID W. TENNANT**, B.S. IE, tried retirement for a couple of years, only to discover that working is better! He works mornings now at Sensor Systems LLC.

**1955**

**MARTIN J. ESSICK**, B.S. CHE, has retired but still tutors high school students in math, chemistry and physics.

**PARK B. MELTER**, B.S. ME, is retired.

**1956**

**CARL E. VANN**, B.S. EE, has retired from Martin Marietta.

**1957**

**RONALD F. YORK**, B.S. CE, retired in 2005 after 48 years of active practice.

**1959**

**GEORGE H. SHIPLEY**, B.S. EE, is retired and is now a world traveler, having made his way to every continent.

**1960**

**MARVIN J. LOPEZ**, B.S. IE, has retired from his position at Raytheon Engineers and Constructors, where he served as a senior mechanical engineer.

**1961**

**JACK SEIBERT**, B.S. IE, M.S. MSE, has enjoyed an illustrious career. He spent 25 years as an engineer for the U.S. Army Airborne Division before working as a project manager for Richard B. Russell Dam and Lake. He co-founded the Exploring Engineering Academy at Georgia Tech and is currently a senior project manager for CH2M HILL Inc. in Atlanta.

**1963**

**DAVID JOHNSON THIGPEN**, B.S. CE, has retired from Lockheed Martin, where he was a chief test pilot.

**1965**

**MICHAEL LIFLAND**, B.S., M.S., retired in 2006 after spending the previous 16 years as a professor of industrial technology at Eastern Kentucky and as an adjunct professor in materials engineering at the University of Kentucky. He previously worked as a product engineer for IBM and as a plant manager for National Metal.

**1966**

In the previous issue of The Florida Engineer, **CHRISTIAN BAUER**'s degree years were misidentified. He received a B.S. in industrial engineering in 1966, a master's in 1967 and a Ph.D. in civil engineering in 1975. He is currently serving on the Florida Board of Professional Engineers.

**ROY ALLEN BROWN**, B.S. CE, is the owner of Gator Engineering Construction.

**BRAD ROBERTS**, B.S. EE, was recently elected chairman of the Electricity Storage Association during its annual meeting. He is the power quality systems director of S&C Electric Co. in Chicago.



**1967**

**DOUGLAS M. DARDEN**, B.S. CE, M.S. ME '68, is the founder of D.M. Darden Inc., a consulting and project management firm.

**1968**

In the previous issue of The Florida Engineer, **THOMAS N. ROBERTS'** degree was erroneously listed as a B.S. ISE. His degree is actually in systems engineering.

**1969**

**PEDRO GIRALT**, B.S. ME, won one of four national product design awards from the National Society of Professional Engineers for the aluminum picket handrail developed by Giralt Enterprises Inc. of Miami. The handrail was designed to meet the American Association of State Highway and Transportation Officials criteria for sidewalks, bridge approaches and retaining walls.

**GARY WILLIAM KUHL**, B.S. IE, M.S. EES '78, is the current chairman of the Florida Engineers Management Corp.

**CHARLES ELLIS PHILLIPS**, B.S. EE, is an aircraft training equipment design engineer for Boeing.

**1974**

**STEPHEN SIERENS**, B.S. ME, M.S. ME '76, is an engineering manager with Pall Corp.

**1982**

**JEAN ANN HALE-CORBIN**, B.S. ECE, tests and integrates SW applications for Integrated Space Situational Awareness for Air Force Space Command. She is an IIST certified SW test professional and test manager.

**1983**

**AARON ARNOLD**, B.S. ME, is a senior engineer for ASG Medical Systems and mentors his son on Jupiter High's robotics team.

**STEVEN BUCKLEY**, B.S. MAE, is working for the U.S. Air Force developing low-cost responsive space launch vehicles.

**DAVID BRUCE MARTIN**, B.S. ISE, was recently named manager of procurement metrics, processes and controls at Lenovo Corp. in Morrisville, N.C.

**1986**

**JAMES HARDY JR.**, B.S. IE, has been promoted to executive vice president of product supply for ConAgra Foods.

**DIANE STEWART**, B.S. ME, is a senior engineer at Entergy.

**1987**

**MICHAEL ROBERT BARNETT**, M.E. COE, is the bureau chief of the Bureau of Beaches and Coastal Systems for the Florida Department of Environmental Protection.

**RAFAEL LORENZO-LUACES**, B.S. MAE, is a senior manufacturing engineering manager at United Launch Alliance Harlingen Operations in Harlingen, Texas. ULA is a joint venture between Lockheed Martin and Boeing combining two of the world's premier launch vehicles, Atlas and Delta. In addition, he has previously worked on Athena and Titan launch vehicles and F-16 fighter programs.

**KEVIN A. VANNOY**, B.S. CE, was promoted to director of market services for Midwest Independent Transmission System Operator.

**1988**

**ANDREA CANECEK CARVILL**, B.S. CHE, is a math and science teacher in the Pinellas County School District. She won the Teach for Excellence Grant from Progress Energy in order to fund her school's entry into a statewide hydrogen-powered-car race. Her students were victorious and competed in an international competition in San Antonio this October.

**SEAN L. JERSEY**, B.S. MAE, recently graduated from the Uniformed Services Academy with an M.D. He is currently a surgical intern at David Grant Medical Center.

**1989**

**STEPHEN LEE**, B.S. ECE, recently returned from his third recall to active duty with the U.S. Navy as chief engineer of a 12-boat squadron. He was deployed to Kuwait.

**1990**

**KIRBY MCCRARY**, B.S. CE, has been named director of debris services with iParametrics LLC of Alpharetta, Ga.



**1991**

**SCOTT PHILIP D'ANTONI**, B.S. CE, is currently deployed with the 816 Expeditionary Airlift Squadron at Al Udeid Air Base in Qatar, where he flies a C-17 Globemaster III and works as the assistant director of operations.

**CHRISTOPHER PAUL METER**, B.S. CE, M.S. CE '94, is the geotechnical services manager and vice president at Geotechnical & Environmental Consultants Inc. in Orlando.

**1979 ERIC G. HEINRICH, B.S. CE**

I am half a world away but do a good job of displaying the colors of The Gator Nation. I work for the U.S. Department of State as a construction engineer — project director for a new embassy compound. Previously, I worked for the Royal Saudi Air Force for a couple of years, among other jobs after a 26-year U.S. Air Force career. Wherever we have lived, we've never had a shortage of Gator pride. I raised my Gator flag over the interim embassy in Baghdad on June 26, 2004, to make sure the flag pole functioned properly prior to officially turning the building over and raising the U.S. flag. Gator flags have flown with me at the new embassy compound in Abu Dhabi, United Arab Emirates, and on assignments in Washington, D.C., Saudi Arabia, Turkey, Germany, the United Kingdom, the Azores, Louisiana and of course in Florida. Unfortunately, the oldest flag that has accompanied me through all those as-

signments was shredded by a cyclone here in Burma while on top of a crane. The Gator flags have flown from the top of the contractor's tower crane here in Burma — much to the chagrin of my contractor counterpart Steve Wawrzyk, whose daughter is a Seminole. I wear lots of Gator colors (including a hard hat) and have Gator paraphernalia around the office. Even socially, when I know Steve will be around I wear Florida gear. His company office is in Birmingham, Ala., and they have a lot of Auburn and Alabama faithful working here on-site — they have had to work under the Florida colors. The good news is while we are technically on opposite sides of the contracting and college fences, we have worked well together and will soon deliver a great new embassy compound to the U.S. government for its use in a safe environment. Just goes to show all things are possible.



**1996**

**JASON SCHMIDT**, B.S. ME, is an automation sales engineer for HPE Automation.

**1998**

**STEFAN H. PHARLES**, B.S. CISE, is working for Google in Zurich, Switzerland. Prior to Google, he spent seven years working for Microsoft, where he filed eight patents.

**1999**

**CHRISTINA BRYANT**, B.S. ABE, M.S. ABE '02, has been named as ombudsman for the Environmental Protection Commission of Hillsborough County, Wetlands Division. She had already been serving as an engineer within the Division.



**NATHAN R. COLLINS**, B.S. MAE, is the owner of Georgia Watersports.

**2000**

**MICHAEL DAVID WILSON**, B.S. ISE, is an operations research analyst for Northrop Grumman Corp.

**2002**

**DONNA FAYE WARD-WATSON**, B.S. CISE, is a senior software consultant for Progressive System Solutions, Inc.

**2003**

**ERRICK EGBLAND**, B.S. ME, is glad that the Sales Engineering program at UF helped him get into technical sales with the Lee Co.

**NAVIN MANJOORAN**, M.S. MSE, received numerous awards while pursuing his doctorate at Virginia Tech. He was named an Outstanding Student Leader in 2007, Outstanding Graduate Student in the VT College of Engineering in 2006, and was presented with the Outstanding Graduate Student Service Award in 2006. He now works for Siemens AG.

**2004**

**TUAN TA**, B.S. EE, worked in France after graduation and is currently a product manager at Schneider Electric in Tennessee.



## 1993 EDWARD J. KERTIS, M.S. EES

Col. Edward J. Kertis Jr. (left) accepts the Corps of Engineers flag from Brig. Gen. Joseph Schroedel in the traditional change-of-command ceremony held in Savannah, Ga., June 29. The passing of the flag signifies Kertis' assumption of command of the Savannah District U.S. Army Corps of Engineers. Kertis has served in Europe, Iraq and Afghanistan, and has commanded engineering battalions in New York and North Carolina and the Walla Walla, Wash., Corps of Engineers.

**2005**

**CHRISTINE ELIZABETH AMWAKE**, B.S. EE, is an engineer for Boeing's Satellite Division.

**ADRIANA FUENTES**, B.S. EE, works as a product development engineer for the Ford Motor Co. in Michigan.

**JENNIFER GUSTETIC**, B.S. MAE, is a program analyst for the Transportation Security Administration.

**BONNIE SERINA**, B.S. CCE, a project manager at Miller Legg, has been named Young Engineer of the Year by the Palm Beach Branch of the American Society of Civil Engineers. She is currently the community service chair for the ASCE Palm Beach Branch Young Members Group.



**2006**

**ERIC KNUDSEN**, Ph.D. MAE, is currently working for Northrop Grumman and is conducting fracture experiments with the underseas division.

**2007**

**SIMON B. HO**, M.S. ISE, spent a month in China before beginning his job as a business risk consultant for Protiviti.



### THE HUMAN-POWERED SUBMARINE

UF's American Society of Mechanical Engineers placed eighth out of 15 in the 2007 International Submarine Races with a top speed of 2.262 knots.





# CLASS OF 1957



ANDREW STANFILL

### GATOR TRADITION

Lorenz Simpkin (B.S. EE '62) speaks with Scott Payne, a mechanical engineering doctoral student, about the small satellite design club. The retired engineer's interest comes from 33 years of working for NASA at Kennedy Space Center. His son, Patrick, is now director of engineering at the center. The annual homecoming alumni barbecue was held on Saturday, Nov. 3, in the O'Connell Center. Harris Corp. sponsored free tickets for Gator Engineering alumni, family and friends.



KRISTEN BARTLETT GRACE

### REMEMBER WHEN...

Pete and Shirleen Wait, foreground, listen to a fellow Gator Engineer reminisce at the Grand Guard Luncheon on Nov. 16 about his experience as a student in the College. Pete Wait graduated in the class of 1957 with a degree in electrical engineering. He and his wife now live in Atlantic Beach.



KRISTEN BARTLETT GRACE

### BEEN BUILDING THE GATOR NATION

Henry Weisenburger (B.S. AE '51), left, and Freeman Good (B.S. ME '53) swap stories about the several years they worked together for the same company. The two did not know each other when they were students but became friends when they were co-workers. "Can you believe that we ended up working for the same company?" Good said. "We were two buildings apart."

 see more pictures

# FRIENDS WE'LL MISS

- 1912** Captain Neal S. Storter, BSEE, of Brownsville, Texas, died Nov. 1, 1979.  
**1920** Hart R. Stringfellow, BSCE, of Gainesville, Fla., died April 24, 1981.  
 John D. Sundry, BSCE, of Jacksonville, Fla., died March 17, 1989.  
**1925** Charnelle H. Summers, BSEE, of Kissimmee, Fla., died Sept. 18, 1991.  
**1927** Collier P. Ferrell, BSCE, of Columbus, Ga., died July 3, 1992.  
**1928** George C. Robertson, BSME, of Atlanta, Ga., died April 1, 1987.  
**1929** Zareh Pirenian, BSCE, of Gainesville, Fla., died March 1, 1979.  
 James D. Renfroe Jr., BSME, of Martinsville, Va., died Dec. 1, 1982.  
 Charles F. Trainor, BSCE, of Savannah, Ga., died July 1, 1982.  
**1930** Alden G. Stone, BSME, of Marshville, N.C., died Jan. 1, 1982.  
**1933** Louis P. Browning, BSEE, of Newton, N.C., died Oct. 30, 2006.  
 Lewis W. Robinson Jr., BSCE, of Sevierville, Tenn., died Aug. 1, 1983.  
 Alvin H. Spurlock, MSA, of West Palm Beach, Fla., died Sept. 10, 1988.  
**1936** Harry H. Edwards, BSME, of Vero Beach, Fla., died Oct. 1, 1985.  
 Arnold C. Ewert, BSEE, of Tucker, Ga., died Nov. 10, 1991.  
 W. W. Fineren Jr., BSME, of San Francisco, Calif., died Dec. 31, 1980.  
**1938** Ellison E. Menge, BEE, of Ft. Pierce, Fla., died Dec. 16, 2006.  
 Harry N. Towson, BSEE, of Jacksonville, Fla., died March 14, 1988.  
**1939** Andrew P. Heymann, BSEE, of Merritt Island, Fla., died May 25, 2007.  
**1940** Clyde J. Roberts, BCE, of Debary, Fla., died Jan. 1, 1985.  
**1942** E. W. Rosentreter, BSEE, of Kemp, Texas, died Sept. 2, 2006.  
 Paul J. Vaughan, MSE, of Miami, Fla., died April 20, 1991.  
**1943** Howard N. Ellis, BME, of Miami, Fla., died June 20, 2007.  
**1947** John J. Fahey, BSME, of Kezar Falls, Maine, died Dec. 1, 1986.  
 John J. Farmer, BSCE, of Summerville, S.C., died July 31, 1992.  
**1948** Linton E. Floyd III, BSIE, of Gainesville, Fla., died Dec. 31, 2003.  
 Ben T. Higgins, BSCE, of Roswell, Ga., died Nov. 2, 2006.  
**1949** George D. Barcus Jr., BS, of Pittsfield, Mass., died July 17, 2007.  
 Edgar G. Shelor Jr., BEE, of Phoenix, Md., died July 31, 2007.  
 Joe H. Skillman, BCE, of Lakeland, Fla., died Feb. 2, 1982.  
**1950** Francis E. Akerman, BEE, of Opa Locka, Fla., died Jan. 30, 2007.  
 Leslie E. Reynolds, BEE, of Winston Salem, N.C., died April 19, 2007.  
 Laverte Rogers, BSCE, of Laurel Hill, Fla., died Dec. 23, 1992.  
 Lee A. Stuhl, BSEE, of Orlando, Fla., died Nov. 1, 1985.  
 Arnold W. Sullivan, MSE, of Clearwater, Fla., died Oct. 12, 1988.  
 James F. Van Zandt, BSIE, of Claremont, Calif., died Oct. 4, 2004.  
 Thomas B. Webb Jr., BCE, of Tallahassee, Fla., died March 3, 2007.  
**1951** Charles H. Duggins, BME, of Melbourne, Fla., died July 1, 1987.  
 John J. Duzick, BSME, of Oakdale, N.Y., died April 5, 2007.  
 Costa Francisco, BSAE, of Orlando, Fla., died Oct. 14, 1989.  
 Charles D. French, BSIE, of Monkton, Md., died Dec. 1, 1975.  
 Harvey A. Geiger, BSCE, of Jacksonville, Fla., died Oct. 19, 1983.  
 Harold W. Sondles, BSCE, of Huntington, W.Va., died March 28, 1986.  
**1952** C. Lamar Swope, BSCE, of Pinellas Park, Fla., died Aug. 31, 2007.  
 Yu-Sun Tang, PHD, of Pittsburgh, Pa., died March 31, 2007.  
**1953** Ben J. Marshall, BSEE, of Dunnellon, Fla., died April 5, 2007.  
 Fred T. Sumner, BSAE, of Orlando, Fla., died Feb. 1, 1984.  
**1954** Donald Eadie, MSE, of Belleair Bluffs, Fla., died Nov. 17, 1981.  
**1955** Augustine Friscia Jr., BEE, of Indian Harbour Beach, Fla., died May 16, 1999.  
 Philip H. Shears, BSAE, of Casselberry, Fla., died Feb. 1, 1990.  
 Robert C. Stone, BSME, of Merritt Island, Fla., died Oct. 28, 1983.  
**1956** Paul A. Conerly, BSEE, of Plantation, Fla., died July 20, 2006.  
 P. L. Fillmore, BME, of Birmingham, Mich., died Sept. 15, 1990.  
 Maurice T. Valentine, BSIE, of Plano, Texas, died May 17, 1999.  
**1957** John C. Klug, BME, of Canyon Lake, Texas, died Sept. 25, 2006.  
 Niels L. Lahr, BSEE, of Ocala, Fla., died March 1, 2007.  
**1958** Hinton N. Frazier, BSEE, of Tallahassee, Fla., died Dec. 15, 1991.  
**1959** Donovan D. Buell Jr., BEE, of Rockville, Md., died July 18, 2007.  
 Suzanne C. Burt, BSCE, died July 1, 1979.  
 John G. Kammerer, BEE, of San Diego, Calif., died Oct. 9, 2007.  
**1960** Sam A. Cacciatore, BIE, of Satellite Beach, Fla., died Nov. 20, 2006.  
**1962** George C. Richmond, BIE, of Tabor, N.J., died Feb. 1, 1987.  
 William A. Robinson Jr., BSIE, of Los Gatos, Calif., died Aug. 1, 1983.  
**1963** Edwin E. Froats, BSCE, of Pinellas Park, Fla., died Dec. 9, 2005.  
**1964** Leyondis Duncan, BCE, of Melrose, Fla., died Sept. 3, 1983.  
 William S. Goree, PHD, of Pacific Grove, Calif., died July 22, 2007.

## ARCHWAY

The Mucozo Tower archway was named after a Florida Indian Chief and marks the entrance to the Sledd Hall courtyard. The hall was built in 1929 and renovated in 1984. It is decorated with reliefs designed by UF art professor W.K. Long and represents Florida's Spanish and Indian past.

- 1966** Peter R. Fatianow, ME, of Colorado Springs, Colo., died July 20, 1976.  
 John Knox, BSAE, of Warner Robins, Ga., died March 15, 2007.  
 John W. Slattery, MEE, of San Diego, Calif., died July 1, 1986.  
**1967** Roy O. Ball, BS, of Bannockburn, Ill., died Dec. 27, 2006.  
 Thomas R. Foresio, BSEES, of Altamonte Springs, Fla., died Nov. 14, 1979.  
 John G. Stoides, MSEE, of Sterling, Va., died May 15, 2007.  
 Joseph F. Thompson, ME, of Orlando, Fla., died Jan. 1, 1988.  
**1968** Steven J. Katz, BSCE, of Boca Raton, Fla., died June 9, 2007.  
**1969** Byron J. Prugh Jr., MSE, of Melrose, Fla., died Aug. 25, 2007.  
 Cody M. Smith, MSE, of Paradise Valley, Ariz., died Feb. 1, 1985.  
**1970** Ronald V. Finerty, MSE, of New York, N.Y., died Sept. 1, 1993.  
 Edward C. Malemezian, BSEE, of Stuart, Fla., died Oct. 11, 2007.  
**1972** Pedro Ernesto Vargas, BSCE, of Vero Beach, Fla., died Jan. 1, 1977.  
 James J. Witte, MS, of Largo, Fla., died July 18, 2007.  
 Edward T. Yang, ME, of Beverly Hills, Calif., died June 29, 2007.  
**1974** Norman G. Fairhurst, MS, of Lehigh Acres, Fla., died June 1, 1984.  
 Bryan W. Teates Jr., ME, of Warrenton, Va., died Sept. 19, 2007.  
**1975** Thomas E. Powell, BSIE, of Summerville, S.C., died Jan. 24, 2003.  
**1976** Carl D. Mercer, BSCE, of Baton Rouge, La., died June 8, 2007.  
**1977** David Y. Burr, MS, of Ft. Myers, Fla., died Sept. 26, 2007.  
**1978** Bennie Cianfrone Jr., BSME, of Seattle, Wash., died May 9, 2007.  
**1980** Daniel L. Oakes, BSME, of Gainesville, Fla., died May 4, 2007.  
**1981** Cheek E. Gordon II, BSEE, of Jacksonville, Fla., died Sept. 4, 2007.  
**1982** Eduardo Eliseo Ferrer, BSME, of Miami, Fla., died Sept. 1, 1987.  
**1984** Melvin Paulick, BSEE, of St. Augustine, Fla., died Aug. 30, 2007.  
**1985** Keith D. Dabrowski, BSEMS, of St. Petersburg, Fla., died July 20, 2007.  
 Charles R. Derose, ME, of Humble, Texas, died April 19, 2004.  
**1987** Steven D. Fleshman, BSECI, of St. Petersburg, Fla., died Jan. 8, 1993.  
**1988** Paul Michael Spurlin, BSEMS, of Lakeland, Fla., died Jan. 20, 1990.  
 David A. Stewart, BSEE, of Spring, Texas, died Oct. 29, 1997.  
**1991** Joel Matthew Tyner, BSCE, of Gainesville, Fla., died Dec. 4, 1996.  
**1994** Lt. Bryan M. Dumais, BSES, of West Palm Beach, Fla., died Oct. 9, 1997.  
**1996** D'Sean A. Sumwashe, BSEE, of Wesley Chapel, Fla., died June 15, 2007.  
**2002** Wayne R. Bomstad II, MS, of Gainesville, Fla., died Sept. 21, 2007.

**RICHARD G. CONNELL JR.** passed away in November. He received his doctorate in 1973. He soon joined the Materials Science & Engineering faculty and served in many ways, including as an associate chair and an undergraduate adviser.



**ALAN JACOBS** passed away in October. He received his doctorate from Penn State in 1963. He served as a faculty member in the Department of Nuclear & Radiological Engineering for 23 years. He was the Department's chairman from 1980 to 1982.



**RICHARD LEAVENWORTH** received his doctorate from Stanford in 1964. He had worked at UF since 1966, retaining the title of professor emeritus following his retirement. He founded the Continuous Quality Improvement program in the Department of Industrial & Systems Engineering and co-authored multiple books.



**GLENN J. SCHOESSOW** passed away in October. He was 97 years old. He was a Nuclear & Radiological Engineering faculty member. Early in his career, he served as an engineer during the construction of the Hoover Dam.



**OSCAR AHUMUZA**  
 Mechanical & Aerospace  
 Engineering Sophomore  
 1986 - 2007



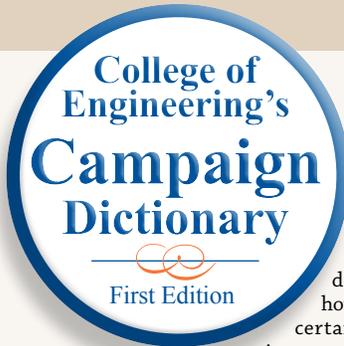
**MICHAEL BACKINATHAN**  
 Computer Engineering  
 Graduate Student  
 1982 - 2007



read full obituaries

# CAMPAIGNING for education

Florida Tomorrow: The Campaign for the University of Florida kicked off Sept. 28. Events were held around campus and concluded with an evening gala at the Stephen C. O'Connell Center. The University aims to raise \$1.5 billion, of which \$544,221,343 has already been raised.



**be-quest** \bi-kwest\ *noun* : you are kind enough to remember UF in your will. There's no need to wait until death do us part, however — through certain planned giving programs you and UF

can enjoy your investment while you're still of strong mind and body.

**cam-paign** \kam-pān\ *noun* : a prolonged effort to raise money for UF. The campaign is vital to the University's health, making our teaching, research and service possible.

**en-dow-ment** \in-dau-mənt\ *noun* : think of it as a big savings account, big enough that you can live off the interest without touching the actual balance. UF's endowment topped \$1 billion for the first time this year. Seeing that balance grow even more is of great interest to the University because it broadens the scope of what we can do for our students, faculty and you.

**fel-low-ship** \fe-lə-ship\ *noun* : similar to a scholarship, it helps graduate students with their advanced studies and research.

**match-ing gift** \mach-ing gift\ *noun* : an easy way to double or even triple your gift's value. Many employers have programs in which they give dollar-for-dollar to the charity of your choice (including UF). At higher money levels, the state has a similar program for donations to universities.

**pro-fes-sor-ship** \prə-fe-sər-ship\ *noun* : a major kudo for a UF faculty member to receive, providing them with money for research and program development.

**stew-ard-ship** \stü-ərd-ship\ *noun* : a fancy word to say we're responsible with money. We promise to invest your money wisely and spend it in accordance with your wishes. We'll be good stewards.

**Ann McElwain**  
Senior Director of Development  
330 Weil Hall / P.O. Box 116575  
Gainesville, FL 32611  
P. 352-392-6795 / F. 352-846-0138  
amcel@eng.ufl.edu



FLORIDA TOMORROW STIRS IN THE HEARTS OF TODAY'S GATOR ENGINEERING STUDENTS. They are the teachers, the scientists, the entrepreneurs, the doctors and the leaders. They are the dreamers, they are the problem-solvers, they are the innovators. They are empowered by the generosity of Gator Engineering investors. Because of these heroes, we can use tangible rewards to attract and keep the very best faculty. Because of their contributions, we can enhance our undergraduate experience with instant access to industry and state-of-the-art research and teaching facilities. Because of their gifts, in our lifetime we will see products, devices and technologies emerge from UF and change the world. Florida Tomorrow depends on the heart of today's Gator Engineering supporters.

**\$80 million**  
COLLEGE OF ENGINEERING CAMPAIGN GOAL



## A Night To Remember

Dean Pramod Khargonekar and Frank Gillette (B.S. AE '62) attended the Florida Tomorrow kickoff gala on Sept. 28 in the O'Connell Center. Gillette, a UF Distinguished Alumnus, serves on the Dean's Advisory Board and the UF Foundation Board. He also chairs the board of advisers for the Department of Mechanical & Aerospace Engineering. Gillette chaired the engineering major-gifts committee for the last campaign. He is a retired engineer who spent his career at Pratt & Whitney and is renowned for his work designing jet-propulsion engines.

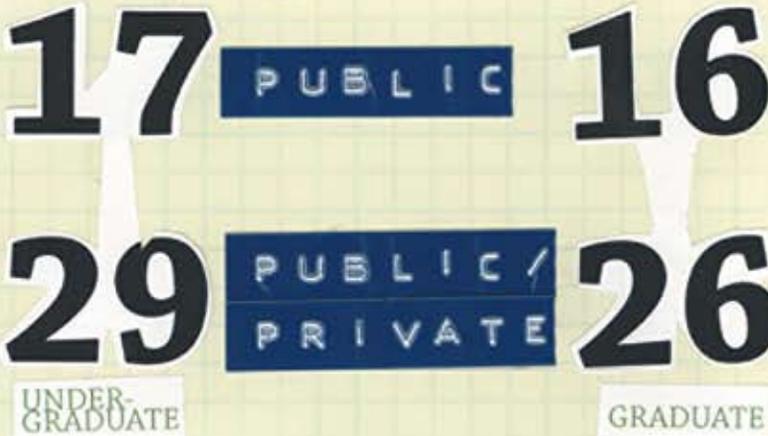


RUSS BRYANT

# BY THE NUMBERS

## GATOR ENGINEERING AT A GLANCE

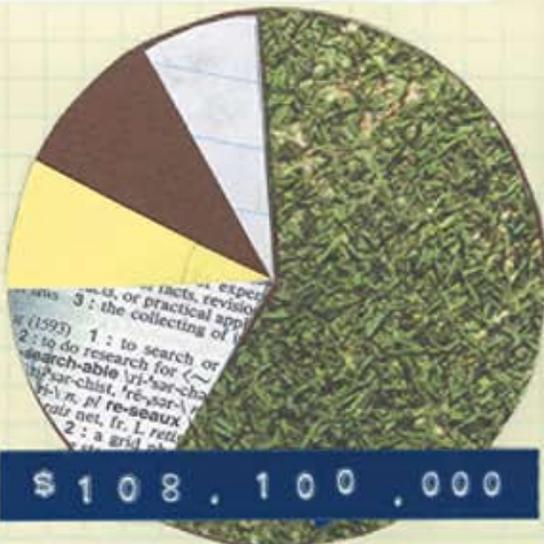
rankings  
u.s. news &  
world report



uf has six top-ranked undergraduate engineering programs among public and private schools:

- AGRICULTURAL (7)
- CIVIL (19)
- ENVIRONMENTAL (16)
- INDUSTRIAL (16)
- MATERIALS (10)
- NUCLEAR (10)

research  
expenditures



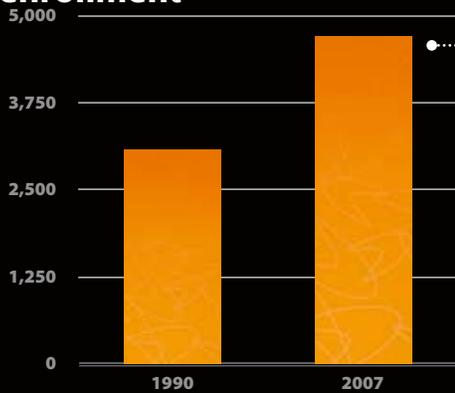
287 TENURED/  
TENURE-TRACK  
FACULTY

4719  
UNDERGRADS

2454 GRADUATE  
STUDENTS

# PORTRAIT of the UNDERGRADUATE

## gator engineering undergraduate enrollment



## university of florida estimated cost of attendance for two semesters [2007-2008]

tuition & fees	\$3,370
books & supplies	\$940
computer (low-end)	\$970
housing & meals	\$7,020
transportation	\$520
clothing	\$610
insurance	\$1,640
<b>total budget</b>	<b>\$15,070</b>

Source: University of Florida Student Financial Affairs

according to a 2005 study published by virginia tech, **gator engineering students are ranked No. 2 in the nation at winning student competitions**



### GETTIN' DIRTY

On June 10th, the UF Baja SAE team won fifth place out of 140 international competitors in the 2007 Baja SAE Rochester World Challenge held at R.I.T. in Rochester, N.Y.



## IN 1990...

- ☞ Microsoft released Windows 3.0
- ☞ Tim Berners-Lee created the first Web browser, the first Web server and the first Web page
- ☞ Seinfeld debuted
- ☞ Photoshop 1.0 was released

"I chose engineering because of just the idea that I will be able to make new things and make them better, and enhance the quality of life for people in general."

— Cybrin Thompson, *freshman*

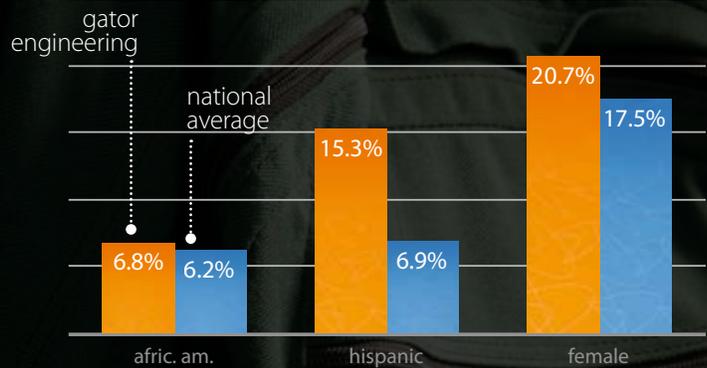
**4.06** average GPA of incoming gator engineering students

**1,314** average SAT score of incoming gator engineering students

**100%** incoming gator engineering students in the top 25 percent of their high school class

**54** gator engineering student organizations

## gator engineering undergraduate diversity profile



## average value of a gator engineer's backpack

<b>laptop</b> [14.1-inch / intel core 2 duo 2.20 ghz / 2gb memory / 160 gb hard drive / cd/dvd / 802.11g / bluetooth / assorted required software]	\$1,856
<b>books &amp; supplies</b> [including pens, paper, notebooks, binders, engineer's paper]	\$470
<b>cell phone</b> [those free ones you get with the plan go to their parents]	\$100
<b>graphing calculator</b> [ti-83plus]	\$96
<b>ipod</b> [80 gb]	\$249
<b>the backpack itself</b>	\$40
<b>total cost</b>	<b>\$2,811</b>

coke has always been coca-cola classic

there have always been low-fat options

they've never seen an "after school special"

smoking has always been banned on airplanes

they've only had three presidents

the ADA has always been around

## BOEING SUPPORTS GATOR ENGINEERING

From left to right: Mechanical & Aerospace Engineering Chair Bala Balachandar, Sherry Smith of The Boeing Co., Dean Pramod Khargonekar, and Society of Women Engineers representative Mirna Pao. Boeing presented the donation on Oct. 29 to support scholarships and student organizations.



# FROM 349 WEILHALL



## WE HAVE A WINNER

Brianna Sylvester, 10, is the winner of the Great Car Contest. Brianna answered the call for entries from *Quark's Engineering Adventure*. The children's activity book was mailed with the summer 2007 issue of *The Florida Engineer*. Brianna's dad, Sean, is a Gator Engineer (B.S. EE '05, MS '07). Congratulations, Brianna.



# DEAR FLORIDA ENGINEER...

## FOND MEMORIES

In the summer issue of *The Florida Engineer* I came across "Friends We'll Miss." From the 1958 class, I read John W. Sanwald's name. John and I were close friends and graduated from high school together. After we both served time in the armed services, John talked me into going to UF. His wife introduced me to the girl that became my wife 48 years ago. Thank you for bringing back fond memories.  
Theodore M. Hillyer (B.S. CE '59)

## QUARK ROCKS!

Since my son, Travis, is Gator Engineering graduate, we receive your magazine. The recent issue included "Quark," an activity book for children. I am very impressed the engineering college would take the time to introduce our children to engineering and physics. I think this supplement will encourage our children to be engineers. We all know just how great it is to be a Gator Engineer — Travis has shown us. Thank you,  
Iris Ruth

## HEY, YOU

Your latest issue got my attention. It's quite a change from the typography of the 1950's. Keep up the good work.  
Fred R. Sias (B.S. EE '54, M.S. EE '59)  
Editor, *The Florida Engineer*  
1951-1952



Pop culture often portrays college life as frothy and salacious. Movies like *Animal House* are amusing, and perhaps you once donned a toga in honor of Bluto Blutarsky. News stories publicize the brash aspects of college life, like the Duke University rape case and the now infamous "Don't Tase me, Bro," incident at UF. Even *The Princeton Review* ranks the University of Florida as the No. 4 party school, No. 12 for "their students (almost) never study," No. 9 for beer and as the No. 3 jock school.

Don't get me wrong — I'm sure Gator Engineers have participated in toga-parties. Good for them. But the other side of Gator Engineering really flips our skirts — even when we wear pants.

For example, students from UF's Engineers Without Borders chapter are raising money so they can go to Cambodia. They plan to install a sanitation system and train rural Cambodians to run it. The micro air vehicle, a 4-1/2-inch surveillance plane, and the SubjuGator,

an autonomous submarine created by UF engineering students, are more examples of how Gator Engineering teams consistently win international competitions. Materials Science & Engineering undergraduates swarmed the department office for a chance to spend two weeks at Sandia National Laboratories learning about nanotechnology.

Undergraduates have always been the backbone of universities. And our College knows this. We cultivate it.

Dean Pramod Khargonekar taught *Information Technology and Society* in the fall of 2006. The class was for freshmen. The Integrated Product & Process Design course for seniors has sponsors like NASA, Procter & Gamble, BIC and the U.S. Army that pay \$20,000 to have our students — undergraduate students — make their products or designs better.

A Gator Engineer is a great thing to be, especially an undergraduate engineer — even in a toga.

*Nicole C. McKeen*

NICOLE CISNEROS McKEEN, Editor



Psst...OK, we know there's no handy-dandy update card in this issue. But, we do have a handy-dandy Web site, where you can update us, yell at us (well, not really "yell"), tell us how great we are, tell us how great you are — and you don't even have to brave the winter weather to get to the mailbox.

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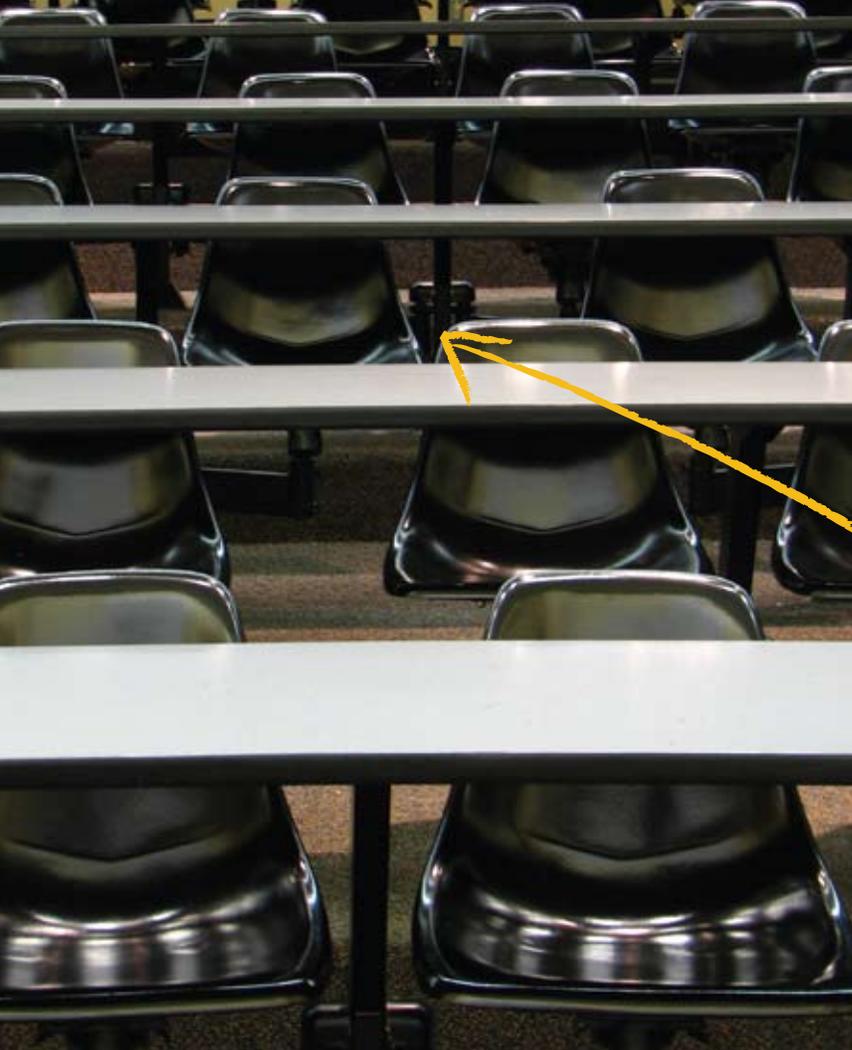


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