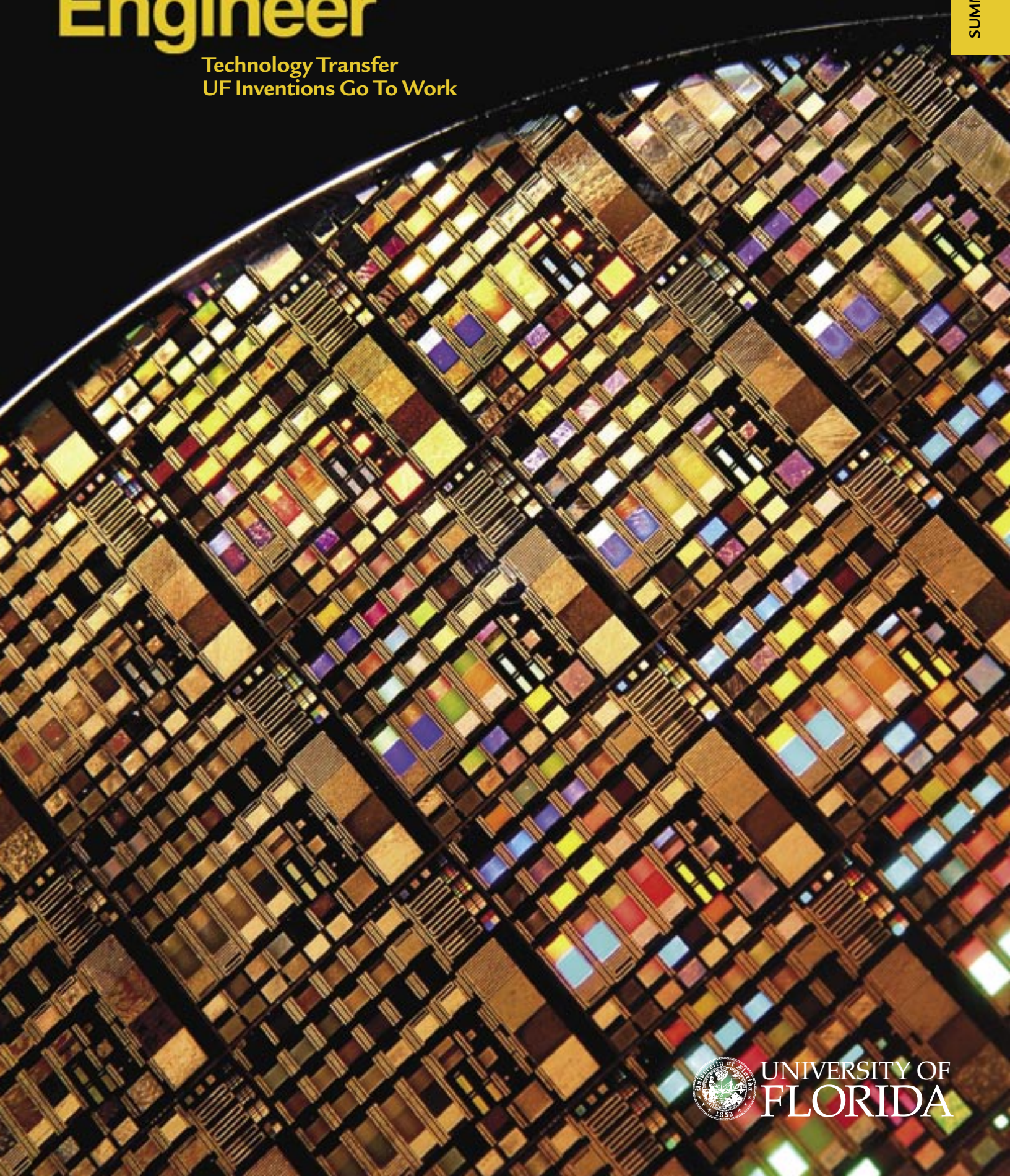


The Florida Engineer

Technology Transfer
UF Inventions Go To Work

SUMMER 2004



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FLORIDA

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US News & World Report 2004 Graduate School Rankings

US News & World Report had some good news for the College of Engineering in its April 2004 issue. The college is now ranked 14th among public institutions, up from 16th last year. The college's ranking among all institutions, public and private, remained at 26.

Nine college graduate disciplines were ranked in the top 20 of all public institutions. (Agricultural engineering and nuclear engineering were not ranked this year.)

Discipline	Overall	Public
Aerospace	22	15
Chemical	27	17
Civil	28	17
Computer	27	15
Electrical	31	19
Environmental	19	11
Industrial	14	10
Materials	9	6
Mechanical	27	18

Dean & Publisher
Pramod Khargonekar

Publications Adviser
Marc Hoit

Managing Editor
Ron Franklin

Editor & Principal Writer
Martha Dobson

Contributing Writers
Aaron Hoover
Patricia Casey

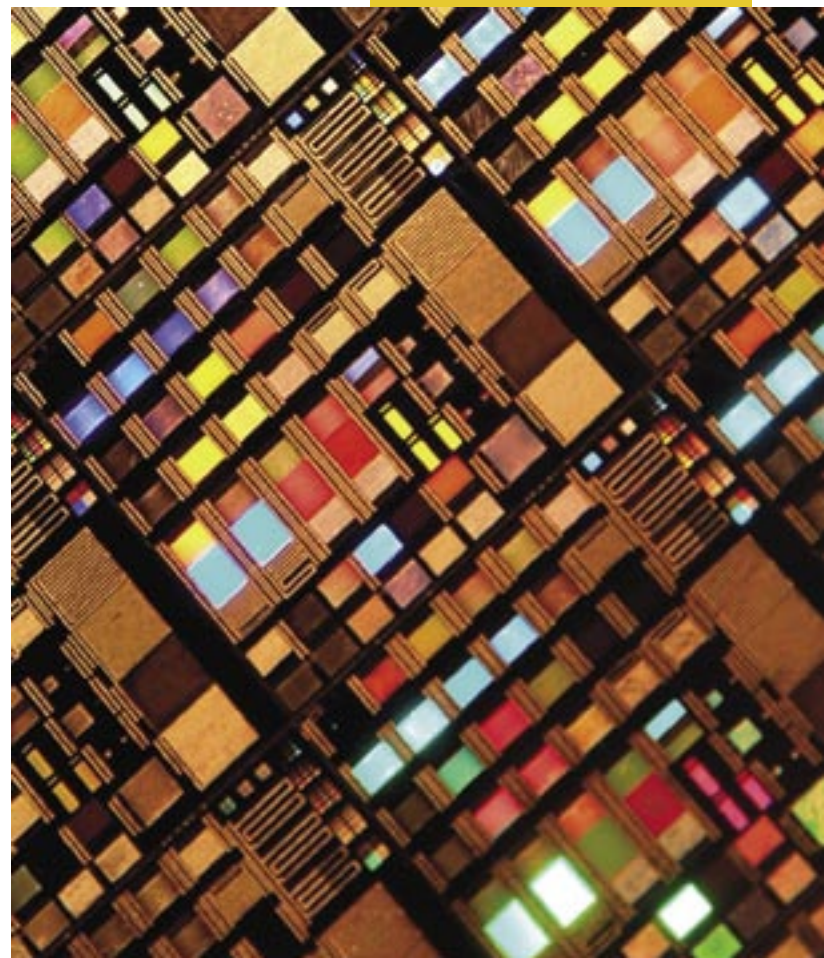
Photographers
David Blankenship
Ron Franklin

Designer
Christina Loosli

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Boyd Brothers, Inc.

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Cover: This microprocessor was polished to perfection by a new slurry technique developed by UF engineering professor Rajiv Singh and his wife, Deepika. UF inventors are bringing many new projects to market with the help of the University of Florida's Office of Technology Licensing. For more, see our stories beginning on p. 5. The Singh slurry process is pictured on p. 11.





A Letter from Dean Khargonekar

In 1998, the University of California at Berkeley entered into a \$25 million five year “strategic alliance” with Novartis. This agreement called for the global pharmaceutical company to provide \$5 million annually to the UC Berkeley Department of Plant and Microbial Biology for undirected research. The agreement also stipulated that

Novartis would provide access to proprietary technology and bioinformatics databases. In return, Novartis received the first right to commercialize approximately 30 to 40 percent of the department’s discoveries. (The percentage corresponded to the fraction \$5 million represented of the total budget of the department.)

Enacted in 1980, the Bayh-Dole Act is widely regarded as a landmark in the commercialization of university research. This law allowed and encouraged universities and non-profit institutions to own the intellectual property generated from research sponsored by the federal government. While the recognition of potential societal benefits of scientific research at universities dates back at least to Vannevar Bush’s 1945 report, “Science – The Endless Frontier,” the Bayh-Dole Act gave very clear incentives to universities to engage in commercialization of university research.

Against this backdrop, the Berkeley-Novartis deal became the focus of great controversy. Although it was hardly the first such agreement, the fact that one of the most prominent public universities in the nation would so closely ally itself with a private corporation led to a public discussion of deep and far reaching issues surrounding the trend toward university commercialization. In “The Kept University,” a famous *Atlantic Monthly* article, Eyal Press and Jennifer Washburn wrote: “In an age when ideas are central to the economy, universities will inevitably play a role in fostering growth. But should we allow commercial forces to determine the university’s educational mission and academic ideals? ... Universities, once wary beneficiaries of commercial largess have become eager co-capitalists, embracing market values as never before.”

Gordon Rausser, dean of UC Berkeley’s College of Natural Resources, expressed the opposite viewpoint in an *AgBioForum* article: “Land Grant universities pioneered the synergies between practical knowledge and fundamental science. Hence, when

the College of Natural Resources desired to ensure a first-rate graduate education for its students in plant and microbial biology ... it turned to where much of the current practical knowledge in plant and microbial biology exists; namely, the lifescience companies. ... To be sure, Land Grant universities are public assets of immense value. So long as our culture is maintained this value will be enhanced, not diminished, when we work creatively in collaboration with other institutions including private companies.”

From the perspective of an engineering college, it is only natural for us to engage with private industry in research and education. However, as the Berkeley-Novartis deal illustrates, it is extremely important to deal directly with the issues of conflict of interest, the obligations of a public university, and the protection of faculty and student rights and academic freedoms. On one hand, insights from practitioners in private industry can enrich academic curriculum and research directions. On the other hand, engineering research at universities has played and continues to play a very significant role in the growth of a modern knowledge-based economy in fields ranging from information technology to energy to environment to national security. Google Inc.’s impending initial public offering once again underscores the wealth creation opportunities that arise from entrepreneurial activities emanating from research universities. It seems clear that the best and most responsible course of action for research universities is to engage in technology transfer and entrepreneurial activities while maintaining the fundamental societal obligations of a public research university: absolute honesty, public good, freedom of inquiry and open debate, unfettered dissemination of knowledge, etc.

In this issue of *The Florida Engineer*, we highlight our activities in technology transfer and entrepreneurship. Roughly 12 to 14 percent of our research expenditures are supported by industry funded projects. Recently, we reached a broad agreement with Melbourne-based Harris Corp. on intellectual property disposition from joint research activities. You will read about our activities in patents and licensing with the University of Florida Office of Technology Licensing. To educate our students in entrepreneurship, we have started a new program called Integrated Technology Ventures as part of our very successful Integrated Product and Process Design program. Also, a new course on entrepreneurship for engineers has been initiated. These are just a few of the myriad activities that allow our students and faculty to engage in cutting-edge education and research while interacting with the commercial milieu where their work belongs.

We hope you enjoy reading about our faculty and student ventures, and we welcome your further interest in the exciting education and research activities of the college.

Pravod Khargonekar



Engineering Advisory Council Annual Meeting

The College of Engineering Advisory Council met Thursday, Feb. 26, to hear about current college research and a new undergraduate education program in entrepreneurship. The council members are a diverse group from industry and academia who advise the college's departments on their growth and development.



Entrepreneurship was the special topic for this year's meeting. Many engineers are now establishing businesses based on technologies they have developed. The college has established new courses and programs to give undergraduates the skills they will need to start businesses.

Faculty, too, are interested in bringing technologies to the marketplace. College electronics research programs with potential for future practical applications were described to the advisers. The presentations included advanced computing and information systems; electronically guided autonomous robots; semiconductor spin electronics; and image and signal analysis



for detecting landmines.

Jack Sullivan Jr., president and CEO of the Florida Research Consortium, gave a lunchtime talk about his company, which serves to facilitate cooperation among the state, industry, and the university. The meeting concluded with a banquet at UF's Touchdown Terrace. The banquet speaker was Malcolm J. Kaus, the Global Polyethylene Products Technology Manager from ExxonMobil Chemical Company, which generously sponsored the advisory council meeting.

Martha Dobson

Portraits of former College of Engineering deans Robert Uhrig (left), Win Phillips (center), and Thomas Martin (pictured separately) were unveiled at the EAC banquet. The paintings, a gift to the college, were done by retired UF electrical engineering professor Peyton Peebles.

Malcolm Kaus, from ExxonMobil Chemical Company, was the banquet speaker.

EAC
Engineering

2 0 0 4

Advisory Council

The University of Florida is

Taking Ideas from Mind to Market

Picture an inventor in your mind. Do you see a guy working alone in his garage? A technocrat in a giant laboratory? A University of Florida engineer?

Almost certainly you see a dreamer, not a pragmatist, not a businessman, or a marketing expert. You aren't likely to visualize a UF professor with an entire team of business professionals ready and able to help bring a new product to market.

At UF, however, that is the reality. The Office of Technology Licensing (OTL) at the University of Florida, working with UF's EDA University Center, brings together all the pieces needed to commercialize inventions created by UF faculty. OTL is part of UF's Research and Graduate Programs division. The EDA center is a partnership between UF and the US Department of Commerce Economic Development Administration, or EDA.

"For the College of Engineering to improve the climate for entrepreneurship and technology transfer, a good working relationship with the Office of Technology Licensing is essential. Over the last couple of years, we have worked hard to establish this," says engineering Dean Pramod Khargonekar.

As a result of the college's growing interaction with OTL and the EDA center, several UF engineers have start-up companies incubating here in Gainesville. Several others have patented ideas taking the first steps toward start-ups. The companies are a diverse lot. They build water contaminant monitors, intensive care unit data managers, and air pollutant sensors, among others.

All began as inventions created by UF engineering faculty and students. OTL believes that UF has some of the world's best inventors in engineering, and the university is interested in commercializing these inventions because of

their potential benefit to the inventor, the university, and the community.

The intent is to form companies to take new technologies to the marketplace. That creates economic development opportunities in Florida and new jobs, especially for recent university graduates. It also gives inventors a stake in the companies so the whole community can benefit from UF technology.

All employees at UF who invent or develop a product must disclose it to the university. This requirement is true for all faculty, staff, or students, whether the work is done on- or off-campus, as a part of a research program, or just from personal interest. UF has the right to claim that intellectual property as its own.

UF does not claim its right to every new development. Instead, OTL works with the inventor to determine if the product is suitable for patent. If it is, OTL files the patent application and helps determine whether to license the idea to an existing company or to license it to a start-up company. If the choice is a start-up company, OTL helps find an executive to run the company and write a business plan, locate investors, and do marketing research. When all the pieces come together, a start-up is born.

continues p. 11

New Tech Snapshot

Start-up: Smart Structures, Inc.
Digital Wireless Sensors for Concrete Piles

Wireless sensors can be implanted in the concrete piles that support bridges, buildings, and other structures. These sensors can analyze in real time the stresses that occur when the piles are installed and reveal damage from events such as earthquakes and collisions. The sensors will improve safety and reduce maintenance costs.

The invention team is led by Michael McVay, professor, Civil & Coastal Engineering.



New Program Gives Undergraduates an Introduction to Tech Transfer

The number of UF-based technologies reaching the marketplace may soon be on the rise thanks to a new program that provides a unique learning experience for engineering and business students while helping faculty market their inventions.

The Integrated Technology Ventures (ITV) program is an innovative approach to applying engineering knowledge in an entrepreneurial environment. Multidisciplinary teams of students learn the entrepreneurial process with the goal of preparing a technology for commercial use.

The ITV program combines the resources of three successful UF industry-interaction model programs: the College of Engineering's Integrated Product and Process Design (IPPD) program, the Center for Entrepreneurship and

Integrated Technology Ventures *itv*

Innovation (CEI) in the Warrington College of Business Administration, and the Office of Technology Licensing.

“The idea was to focus the strengths of these three entities to provide a unique, immersive educational experience for our students,” says Keith Stanfill, assistant engineer in Industrial & Systems Engineering and director of the IPPD program.

“In IPPD we have learned how to create products based on industry best practices. We're good at developing designs and prototypes from customer requirements,”

Stanfill says. “In the past, we've always relied on an industry sponsor to provide us with the requirements. Now we have the added benefit of interacting with business students who develop the customer requirements from market studies during the design phase.”

Each student team forms a virtual company around a UF faculty invention. The team is structured and acts as a start-up company complete with the need to focus limited resources and develop a product that meets market demands. A local, experienced entrepreneur agrees to act as CEO of the virtual company. The CEO then works with a CEI faculty member and the faculty inventor to coach a business team of two to five MBA students. An engineering faculty member serves as mentor for a technology team of four to six undergraduate engineering and business students.

“The ITV program is a great way for students to experience a start-up environment without taking on the start-up's risk,” says Erik Sander, director of Industry Programs in the College of Engineering.



New Tech Snapshot

Patent: Flux Meter to Monitor Contaminants in Water

The Passive Flux Meter is a self-contained groundwater flow monitor that is able to detect organic and inorganic contaminants. The monitor measures both the magnitude and direction of the flow. The meter has a simple design and is easily monitored.

Co-inventors are Michael Annable, associate professor, Environmental Engineering Sciences, and Kirk Hatfield, associate professor, Civil & Coastal Engineering.

Sander helps recruit local CEOs who are interested enough to license the technology, begin a start-up company, or take on the technology within their own companies. Additionally, CEOs may bring in their own employees or provide other resources. Sander also developed a series of entrepreneurial modules to supplement the IPPD lecture series.

The ITV program, which began in fall 2003, moved from concept to pilot implementation in less than six months, and three virtual companies were formed around different technologies.

In one company, students worked with a wireless device to monitor the health of large animals. The dairy cattle industry is the target market. Another technology measures fluid and solute fluxes in groundwater to monitor water supplies for contaminants. (This student team won a significant award for developing their company: story on p. 24. Also see New Tech Snapshot, p. 6.)

A third company focused on a respiratory muscle strengthening device that increases breathing force and could be used by musicians, athletes, or people who suffer from airway dysfunction. (See story p. 10.)

New Tech Snapshot

Patent: Solid State Sensors for Carbon Monoxide and Nitric Oxide Compounds

These small (<1cm²) sensors detect atmospheric pollutants such as unburned hydrocarbons. They are sensitive to specific gases and can be applied in both industrial and medical settings. They are rugged enough to be used in harsh environments such as automobile exhausts. When used in a feed-back loop, the sensors can help improve efficiency of the combustion process and reduce airborne pollutants.

The inventor is Eric D. Wachsman, professor, Materials Science & Engineering.

The university will assist the ITV teams in seeking funding from angel investors or venture capitalists. Furthermore, the business team will work with the technology team to produce a market analysis and business plan to present to potential investors, business development partners, and customers at CEI's annual business plan competition and similar investor forums.

Current funding for the program has been provided by the Economic Development Administration of the US Department of Commerce, the National Collegiate Inventors and Innovators Alliance, and the UF College of Engineering. MRI Devices Corporation, a small company based in Gainesville and Wisconsin, is sponsoring one of the projects.

"We need to attract additional funding sources to take the technologies to the next step," says Stanfill. "Ideally we would like to spin out companies."

UF also supports two incubators in Gainesville that can provide a home to students who wish to license the technology and convert the virtual company to an operating business.

The UF Office of Technology Licensing helps to facilitate the transfer of technologies created at UF to the commercial sector for public use. The ITV program develops the middle ground for bringing the technologies from the bench top to the marketplace.

The ITV program also can provide many economic benefits to the community. In addition to offering products and services that help consumers, the start-up companies create higher wage jobs in this area.

Since students participating in the ITV program will be graduating engineering or business seniors or completing their MBA, at least part of

the team may be interested in continuing the project as employees of a start-up company. These newly created jobs will give students the opportunity to stay in Gainesville after they graduate.

Engineering Dean Pramod Khargonekar is equally enthused about ITV. "I am very excited about the new ITV program as part of our excellent IPPD program. It will provide our undergraduate students a unique opportunity to experience entrepreneurial activities. I expect this program to grow significantly over the coming years," Khargonekar says.

Patricia Casey



Two Steps Forward, One Step Back

A cautionary tale for faculty inventors

An invention's path from patent to market can be full of hazards. The experience of Larry Hench has lessons for other UF engineering faculty who want to travel that road.

Hench invented Bioglass® while a professor in Materials Science & Engineering at UF. Bioglass® is a nontoxic, bioreactive glass compound intended for use as implants and bone replacements. They work by forming a bond with living tissue. This concept was new in 1969, when Bioglass® was developed, but the market potential was enormous if the technology could be successfully transferred to private industry.

Therein lies a complicated tale, says Hench, who retired from UF as a graduate research professor emeritus and joined the materials science faculty of Imperial College in London, England, eight years ago.

With the support and encouragement of the US Army, Hench and his team developed the material, tested it, and published the results openly in technical journals. The first reports were met with skepticism, so the team was flattered when, a couple of years later, two engineers from a German company discovered the journal articles about Bioglass® and visited Hench's lab.

"I freely and openly gave them copies of our reports to the Army and showed them the work that we were doing," Hench says.

A year later, Hench found out that the visiting engineers had taken out a patent on a material that sounded just like Bioglass®. The German visitors had taken Hench's Army report, with its original wording and diagrams, and used it as the basis for their patent application. To make their version of Bioglass® appear unique, they added small amounts of two additional elements to the original formula.

Worse, the German patent had a statement that without the two additional elements, Bioglass® in its original form was sure to fail. "That was a horrendous feeling of violation," Hench says.

The German version was quickly put into clinical use. In a short time, the implants using that material began to break up and fail. Now the German version is no longer on the market and there is no Bioglass® patent of the original compositions anywhere in the world that is valid.

"It taught us a real lesson, that we needed to recognize more quickly the potential for theft. So we quickly began to obtain process patents for what we were working on," Hench says.

Hench's next venture into technology transfer was not a success, either. He had a patented process for coating Bioglass® onto orthopedic metals. The process was licensed to a large company, with the agreement that shares from the inventors, the college, and the university would be combined to build a small pilot plant.

Hench says this was a mistake. They underestimated the amount of investment needed to make the venture work. They also did not put a performance clause into the agreement. The project had made no progress after five years, and the university had to threaten legal action to get the rights back.

At about the same time, an otolaryngology surgeon in UF's College of Medicine, Gerald Merwin, thought that Bioglass® would be ideal for replacement bones in the ear, implants that could restore hearing. Clinical tests of Bioglass® ear implants had given good results.

A new company, American Biomaterials, was launched with private investors, with an agreement to provide funding to a newly created campus Bioglass® Research Center. The center was set up with \$200,000 a year in funding for five years to make the transition from government sponsored lab work to manufacture and marketing.

Tech Transfer

The license agreement with American Biomaterials was set up with performance and technology transfer requirements and funding built right into it. The company entered the marketplace with two products, a middle ear prosthesis and the Bioglass® endosseous ridge maintenance implant (ERMI), a device to replace the roots of extracted teeth so patients can be fitted with dentures.

The next step was to submit the products to the Federal Drug Administration for approval. Up to that point, the FDA had never been asked to review products that were bioactive. Previous implants, whether metal or plastic, had been designed to be as inert as possible.

FDA approval for the implants required evidence of extensive laboratory testing, a task carried out by Hench's co-researcher and wife, Dr. June Wilson Hench. She assembled data on 30 tests, the most ever done on a new biomaterial up to that time. The funding support from American Biomaterials made that possible.

"All appeared to be rosy," Hench says. Then in the mid-1980s, American Biomaterials merged with another company that was making collagen products. An accountant reviewing the books discovered that the company's management had begun to access the public offering monies by fraudulent means. The company filed for Chapter 11 bankruptcy while the courts prosecuted the chief executive officer and chief financial officer.

The company executives were convicted, and the university had to find a way to keep the technology alive despite the licensed company being in Chapter 11. The situation was saved by an advance of royalty money from Gatorade, a famous UF tech transfer success, to keep things going until a new company, US Biomaterials, was created.

US Biomaterials has been successful and has introduced a new product, Perioglas®, which is used to repair bone lost due to periodontal and gum disease. In the last two years, they have spun off another company called Novabone®, and the products have been expanded to orthopedic applications. US Biomaterials is also developing a toothpaste containing Bioglass® which is able to resurface tooth enamel, especially of benefit to older people. A PhD graduate of the University of Florida provided the technical leadership for all these products.

Hench put all of this experience together when he and his wife started Geltech. Geltech's start-up time was three years from laboratory to market, in contrast to 15 years for Bioglass®. The first important Geltech product was a specially designed porous window injected with genetically engineered hemoglobin that would serve as a detector for carbon monoxide.

"June and I were both involved in raising the capital and putting together the investment group and initial management team," Hench



says. "It was very stressful, but I think having faculty involved in the start-up is the most efficient way for an engineering college to handle sharing new technologies," he says.

Now Hench is in phased retirement from Imperial College. He is hoping to create a partnership between UF and the University of Central Florida CREOL photonics group to introduce a new technology, NovaTest®, to the market. NovaTest® uses living human cells to do screening in real time, in situ, for toxic materials such as biological and chemical warfare agents.

Hench believes that a university needs to take a very proactive role in helping faculty inventors commercialize their products. Like UF, Imperial College helps evaluate faculty inventions for patent and maintains a start-up venture capital pool, similar to the Emergent Growth Fund created by Florida investors and made available to UF entrepreneurs. Hench approves of that model.

"It's risky," he says, "but if it does succeed, you get multiple payoffs for the university and the local community."

Martha Dobson

Scientist's Device to Improve Breathlessness is Focus of Innovative UF Program

In fall 2003, students in UF's new Integrated Technology Ventures (ITV) program turned their attention to a device developed by UF veterinary medicine professor Paul Davenport which can be used in conjunction with a training program to reduce vocal strain and strengthen voice muscles. It has already undergone extensive testing by high-risk performers in street and musical theater and choral ensembles, by Navy divers, and even by high school band students. Articles documenting the tests' positive preliminary results have appeared in *Advance for Speech-Language Pathologists & Audiologists* and in the *Journal of Voice*.

"What we've developed is a noninvasive mechanical device that fits in the patient's pocket, about the size of a tennis ball," Davenport said. "Using our device and training program for only three to four weeks, people can increase their breathing force an average of about 50 percent."

Davenport said that although the device is not a cure for patients with lung disease, for some it could improve quality of life. "We estimate that there are approximately 20 million people with airway dysfunction of some type that this could help," he said.

The students are part of a virtual start-up company formed around Davenport's invention with the help of faculty and industry mentors. Undergraduate engineering students focus on the technology and design concepts, while graduate-level business students create



Pictured left to right are engineering students Allyson Hooper, Shalveen Shah, Dr. Paul Davenport, Keith Stanfill, ITV program director, engineering student Krystal Harriott, MRI Devices manager Jace Dinehard, and engineering students Michelle Mirabaland and Ryan Law.

a business plan and conduct market research. There is even a "virtual CEO" - a representative from MRI Devices, a company based in Waukesha, Wis., that has offices in Gainesville. The firm donated \$20,000 to sponsor the project.

"With their investment in the project, as well as providing

technical and business-related resources, they're helping to ensure the project's success," Keith Stanfill, ITV program director, said. "In addition, the students are gaining some really valuable skills."

Sarah Carey
College of Veterinary Medicine

<http://www.ippd.ufl.edu>

New Tech Snapshot

Start-up: ICU DataSystems
Bio-informatics for Intensive Care Units

A licensed system distills information from medical monitoring devices into an easy-to-read database. The system is especially useful in intensive care situations where patients are monitored by several electronic devices. All information is available from one source, eliminating time-consuming paper record updates and possible recording errors. Clinicians are thus able to give better patient care.

Inventors are Willa Drummond, College of Medicine physician, former College of Engineering graduate student Samuel Coons, and former engineering visiting professor Chris Carnes.



New Tech Snapshot

**Start-up: Sinmat, Inc.
Polishing Slurry for Copper
Microprocessors**

Slurries are able to achieve the gentle chemical mechanical polishing necessary for planarization of microprocessors and other electronic devices. The slurry improves performance of the device, increases production, and reduces manufacturing costs.

Inventors are Rajiv Singh, professor, Materials Science & Engineering, and Deepika Singh.



continued from p. 5

The system works. OTL was able to create 10 new start-up companies last year, meeting its own ambitious goal, said Jane Muir, OTL associate director. OTL is one of the top 10 technology transfer offices in the nation in terms of licensing income and patents issued, she said.

GTEC – the engineer’s incubator

Engineering start-up companies developed by OTL often begin life at GTEC – the Gainesville Technology Enterprise Center. Booker Schmidt is GTEC’s executive director. GTEC works very closely with the OTL, he said.

“We share the goal of successful tech transfer,” Schmidt said. In addition, he said, “GTEC offers three main things to a start-up

company: special educational opportunities, ongoing strategic advice, and access to outside resources.”

A major resource is the facility itself, situated in east Gainesville. GTEC, only three years old, has offices, labs, and assembly areas available at a reasonable rate to start-ups. Unlike the Sid Martin Biotechnology Development Incubator, located in Alachua, GTEC is not owned by the university, but is a cooperative venture paid for by Alachua County, the city of Gainesville, and the Economic Development Administration.

“It’s a very nice partnership and a beautiful facility. A lot of incubators are in old warehouses and the like, but this one is brand new,” Muir said.

GTEC also houses two venture capital groups. The Emergent Growth Fund, a group of Florida investors, provides seed capital for early stage start-ups. The Inflexion Fund is a formal venture capital group that works with more developed companies, providing them with the first stage of institutional venture capital investment.

During their time at GTEC, the start-ups focus on developing an efficient production process for their products, so they can meet production goals and make money. A start-up company needs to be self-sufficient and economically viable at the end of a three to four year incubation period, Schmidt said.

“We can help them get past the risks involved with a high-tech start-up,” Schmidt said. “And we don’t like to just send a company out the door and forget about them. We want to remain connected with their ongoing growth and development.”

Martha Dobson

<http://www.rgp.ufl.edu/otl/>
<http://www.gtecflorida.com>



New Tech Snapshot

Patent: Low-Energy Desalinization Process

Fresh water can be obtained from salt or brackish water using waste heat from an electric utility plant or similar source. By using inexpensive materials to build the unit, clean water can be obtained at low cost. The water is heated, pumped into a diffusion tower, mixed with air, and directed into a condensing tower. The condensed fresh water can then be collected for later use.

The inventor is James Klausner, professor, Mechanical & Aerospace Engineering.

Harris Day Strengthens UF/Harris Ties



The Harris Corporation visited the University of Florida April 2 to give the company's new president, chairman, and CEO, Howard Lance, a chance to meet and talk with UF faculty and students. Lance talked with UF President Bernard Machen and gave a UF Presidential Lecture, "Just Getting Started," on his vision for the company.

Harris, an international communications company based in Melbourne, Fla., also sent lead researchers from six of their Centers of Excellence to hold discussions with UF electronics engineers. The future of telecommunications research was the subject of a lecture by Harris vice president for technology Kwame Boakye.

"Harris is one of the best industry supporters the College of Engineering has," says Erik Sander, director of industry programs for the college, who coordinated the day's events. In 2003, Harris signed a blanket intellectual property agreement

with the university to expand the company's research collaborations with the College of Engineering. Harris funded the Mobile Networking and Communication Laboratory in the college and sponsors many college projects including the STEPUP program for entering minority students and Integrated Product and Process Design projects. Harris is also a significant employer of UF engineering graduates, hiring more than 400 UF alumni so far.

Martha Dobson

Engineering Names First Woman Associate Dean



G A T O R
Engineering

Cammy Abernathy, Alumni Professor of Materials Science & Engineering (MSE), is the new Associate Dean for Academic Affairs in the College of Engineering. Abernathy is the first woman ever chosen by the college to serve as an associate dean. She succeeds Marc Hoit, who has joined the University of Florida administration as Director of Student Implementation for UF's new Bridges administrative program.

Abernathy, who came to UF in 1993, has a distinguished record in the research of III-V semiconductor materials and

devices. Before joining the college, she did research at AT&T Bell Laboratories in New Jersey. She received her PhD in materials science and engineering from Stanford University and her bachelor's in materials science and engineering from MIT.

Academic administration will be a big change for Abernathy, but she is looking forward to the challenges and possibilities of her new job. "I believe that every 10 years you ought to do something different," she says.

She had a chance to sample the administrative side when Kevin Jones, the MSE department chair, asked her to look into curriculum issues and graduate recruiting. "I found it very interesting, and I liked the idea of doing something that could have a little impact beyond just the people in my own research group," Abernathy says.

The choice of Abernathy as associate dean underlines the efforts of the college and university to increase diversity among the faculty and staff. Abernathy served on the UF presidential search committee and believes that UF's new president, J. Bernard Machen, has a real commitment to increasing diversity at UF, which she believes to be essential.

"I think there is an increasing awareness, especially in engineering, that the demographics of the country are changing and our real growth is going to come from traditionally underrepresented groups, women, and minorities. If we want to recruit those

people, then our faculty and staff also need to be more diverse. Industry has already seen this and made those commitments," Abernathy says.

She points out that industry needs a diverse work force because it sells to a diverse marketplace and must understand how that marketplace thinks. Industry also knows that it needs to recruit among underrepresented groups because that is where the fresh talent is coming from.

"Academia seems to be a little behind industry in those areas, but we are beginning to feel the same pressures. I think there is a lot we can learn from industry about how we can develop a work force for the 21st century," she says.

Abernathy, who will oversee undergraduate curriculum, believes the college does have tremendously talented undergraduates. She also thinks the college has created an excellent disciplinary curriculum, especially at the upper division level. In the future, however, she would like to find ways for the college to "cross-fertilize" the curriculum and make it easier for students to learn in an interdisciplinary environment, especially at the undergraduate level.

"We need to look at ways to bring engineering to the freshman experience," Abernathy says. "We also need to look at learning modes, how we can deliver material that will facilitate learning among all groups."

continues p. 14

Chemical Engineering Names New Chair



Jennifer Curtis has accepted the position of professor and chair of the Chemical Engineering department. She will begin full time in January after completing a six-month sabbatical in Australia.

Curtis was formerly a professor of chemical engineering and University Faculty Scholar at Purdue University. She has also served as the head of the Department of Freshman Engineering and associate dean of Undergraduate Programs in the Schools of Engineering while at Purdue. She received her BS in chemical engineering in 1983 from Purdue and her PhD in chemical engineering in 1989 from Princeton University.

Curtis has an internationally recognized research program in the development and

validation of numerical models for the prediction of particle flow phenomena and received the NSF Presidential Young Investigator Award. She currently serves on the board of directors for the American Chemical Society-Petroleum Research Fund and the editorial advisory board of the journals of *Powder Technology* and *Pharmaceutical Development and Technology*.

Curtis received departmental and university teaching awards while on the faculty at Lafayette College and the University of Arizona. At Purdue, she received the departmental Kimberly Clark Mentoring Award and was named to the university-wide Teaching for Tomorrow Program. In 2003, Curtis received national recognition with ASEE's Sharon Keillor Award for Women in

Engineering and serves on the National Academy of Engineering's Committee on Engineering Education. In 2004, she received the Eminent Overseas Lectureship Award from the Institution of Engineers in Australia.

The current interim chair of Chemical Engineering, Professor Spyros Svoronos, will continue in this role until January. His service has been critical in maintaining the great progress and momentum achieved under the tenure of former department chair Timothy Anderson, who is now associate dean for Research and Graduate Programs in the College of Engineering.

Patricia Casey

<http://www.che.ufl.edu>

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Abernathy also has responsibility for the college's Outreach Engineering Education Program which delivers graduate level courses electronically to students unable to come to campus. She sees a new role for the program in facilitating the college's recently approved 30-hour, non-thesis master's program.

"I can envision a program in which we would partner with a company and offer a master's degree in a particular discipline. Then perhaps we could have an arrangement where the top students in that program could be admitted to the PhD program, with the company sending them here. There's a lot of potential there."

Abernathy sees the outreach program as a way to help the engineering alumni, as studies have shown that successful engineers need to update their education every five years or so.

She would like the college to reach out to the public in other ways as well. "We do a lot of great research. I would like to find avenues to bring that closer to undergraduates, K-12 students, and the public."

One idea she has is creating a "UF engineer bus" with teaching laboratory modules on board that could visit area schools. "It would be great to take around the state and show that UF isn't just for Alachua County, but is a real statewide resource," she says.

Dean Pramod Khargonekar sees Abernathy's energy and originality as a strong plus for the college. "I am very pleased that Dr. Abernathy has accepted the position of Associate Dean for Academic Affairs. With her excellent record of scholarship, her creativity, and interest in faculty and academic issues, she will be an outstanding addition to the college leadership team. I look forward to working with her," Khargonekar says.

For her part, Abernathy believes the college faculty and staff will make a great team. "I am really impressed with the quality of the staff. I think we can work together to do some great things," she says.

Martha Dobson



Elliot Douglas Rolls into Teacher of the Year Award

Elliot P. Douglas, Materials Science & Engineering (MSE) associate professor, is a University of Florida Teacher of the Year for 2003-2004. UF recognizes two outstanding teachers each year for superior undergraduate teaching.

Douglas joined MSE in 1996. He received his PhD in polymer science and engineering from the University of Massachusetts – Amherst in 1992.

The little red wagon that Douglas uses to carry his classroom gear symbolizes his dynamic approach to teaching.

“Elliot is very dedicated to the teaching profession,” says Kevin Jones, professor and chair of Materials Science & Engineering. “He is always looking for ways to improve his teaching methodologies, be it in developing novel delivery methods or attending national seminars and workshops on teaching techniques.”

“His efforts are reflected in his classroom teaching abilities,” says Jones. “Elliot has worked hard to become an excellent teacher and is extremely deserving of this great recognition.”

Douglas also does research in structure-property relationships in polymers, specifically epoxies for composite applications, structure-property relationships of liquid crystalline epoxies, and structure and processing of collagen for biomimetic applications.

His other awards include the Hoechst Celanese Excellence in Polymer Science Award, the Los Alamos National Laboratory Excellence in Industrial Partnerships Award, and the Ralph R. Teeter Educational Award from the Society of Automotive Engineers. In November 1997, he received a Presidential Early Career Award for Scientists and Engineers. He is a member of the American Chemical Society and the American Society for Engineering Education.

Patricia Casey

Materials Science & Engineering students Brendan Collins (left) and Andrew Gerger take the opportunity to push Associate Professor Elliot Douglas in his wagon. Douglas uses the red wagon to carry items to and from classes.

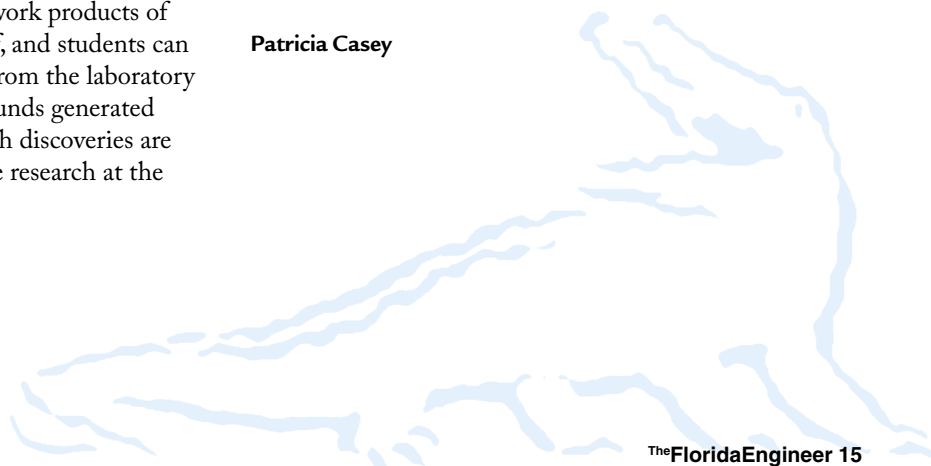
Four Engineering Faculty Members Named UF Research Foundation Professors

The University of Florida Research Foundation (UFRF) named four engineering faculty members as UF Research Foundation professors for 2004-07.

- **James Jones**, Agricultural & Biological Engineering
- **Kenneth O.**, Electrical & Computer Engineering
- **Fan Ren**, Chemical Engineering
- **Y. Peter Sheng**, Civil & Coastal Engineering

UFRF professorships are given to faculty with distinguished current research and a strong, promising research agenda. The three-year award includes a \$5,000 annual salary supplement and a \$3,000 grant.

The professorships are funded from the university’s share of royalty and licensing income on UF-generated products. Founded in 1986, the not-for-profit organization provides a means by which research can be conducted flexibly and efficiently and by which discoveries, inventions, processes, and work products of UF faculty, staff, and students can be transferred from the laboratory to the public. Funds generated by licensing such discoveries are used to enhance research at the university.



Agricultural & Biological Engineering

Wendy Graham, professor and chair, was named one of five UF Doctoral Dissertation Advisor/Mentoring Award winners for 2003-2004 by the UF Graduate School.

Bruce Welt, assistant professor, received the 2003-2004 Teacher of the Year Award from the College of Agricultural & Life Sciences, which also offers degrees through ABE.

Biomedical Engineering

Mingzhou Ding will join the BME faculty as a professor fall term 2004. His primary research interest is in understanding neural mechanisms of perception and motor behavior using both experimental and modeling approaches.

Civil & Coastal Engineering

Fazil Najafi, professor, presented two papers at *Education Engineering for the Informational Age*, the American Society for Engineering Education Southeastern Section Annual Meeting, April 2004: "New Civil Engineering Curriculum" and "Practical Training in the Curriculum of the Civil Engineering Education."

Electrical & Computer Engineering

Toshikazu Nishida, associate professor, received a 2003-2004 College of Engineering Teacher of the Year Award.

Kenneth O, professor, received a 2003-2004 UF Doctoral Dissertation Advisor/Mentoring Award for his dedication in support of graduate education and sponsorship of student research.

Vladimir A. Rakov, professor and co-director of the International Center for Lightning Research and Testing, has been appointed associate editor of the IEEE *Transactions on Electromagnetic Compatibility*. He was appointed a member of the Technical Committee of the 6th International Workshop on Physics of Lightning (Sainte-Anne, Guadeloupe, France, May 2004), a member of the Scientific Committee of the 1st International Conference on Lightning Physics and Effects (Belo Horizonte, Brazil, November 7-11, 2004), and a member of the Program Committee of the VI International Suzdal URSI Symposium (Moscow, Russia, October 19-21, 2004). He was also appointed Co-Convener of the Lightning Session at the General Assembly of URSI (International Union of Radio Science), to be held in New Delhi, India, October 2005.

Environmental Engineering Sciences

Jean Andino, associate professor, was selected by the National Academy of Science's National Research Council (NRC) to serve as a member of the NRC committee to evaluate the changes in air quality and public health as a result of changes in new stationary source review programs. She was selected by the American Association for the Advancement of Science (AAAS) as an AAAS Latin America Lecture Series participant. Andino also received the John J. McCreary Outstanding Faculty of the Year Award from the UF student chapter of the Society of Environmental Engineers.

Thomas Crisman, professor and director of the Howard T. Odum Center for Wetlands, was awarded the title of Sagamore of the Wabash by Indiana Governor Joseph Kernan in recognition of Crisman's international contribution to the ecology of lakes and wetlands and his pioneering efforts in the management and restoration of Indiana lakes. This is the highest award given by the state of Indiana.

Joseph Delfino, professor, was appointed associate editor for water quality monitoring for the *Journal of the American Water Resources Association* with a term to run to December 2006.

Tim Townsend, associate professor, received the Iraj Zandi Award at the 19th International Conference on Solid Waste Technology and Management in Philadelphia, Pa. The award is given to a professor who is providing a strong contribution to the advancement of solid waste technology as well as education in the solid waste field.

Industrial & Systems Engineering

Joseph Geunes, assistant professor and co-director of the Supply Chain and Logistics Engineering (SCaLE) Center, was invited to the editorial board of the *Manufacturing & Service Operations Management* (M&SOM) journal. He presented a paper at the Production & Operations Management (POM) Society's 2004 joint 2nd World POM Conference and 15th Annual POM Conference in Cancun, Mexico, and participated in the Emerging Scholars Program, a special session for fostering young professionals pursuing academic careers in the field of operations management.

Elif Akçali, assistant professor, received the Society of Manufacturing Engineers' 2004 M. Eugene Merchant Outstanding Young Manufacturing Engineer Award in recognition of her significant achievements in semiconductor manufacturing and remanufacturing.

Materials Science & Engineering

Robert DeHoff, professor emeritus, received the 2005 Educator Award from the Minerals, Metals and Materials Society for outstanding contributions to education, metallurgical engineering, and/or materials science and engineering.

Elliot Douglas, associate professor, received a 2003-2004 College of Engineering Teacher of the Year Award and a University of Florida Teacher of the Year Award for 2003-2004.

Brij Moudgil, distinguished professor, director of the Mineral Resources Research Center, and director of the Particle Engineering Research Center, was elected president of the Society for Mining, Metallurgy, and Exploration for 2006. SME is an international society of professionals in the minerals and metals industry and serves around 13,000 members in nearly 100 countries.

Mechanical & Aerospace Engineering

The Society for Experimental Mechanics presented its 2004 Peterson Award to an interdisciplinary team of UF researchers for the paper titled "Full-field Strain Measurement using a Luminescent Coating," *Experimental Mechanics*, Vol. 43, No. 1, 2003, pp. 61-68. The authors include J. P. Hubner, adjunct assistant professor; Peter G. Ifju, associate professor; Kirk S. Schanze, professor in the

Chemistry department; David A. Jenkins, associate engineer; Bruce F. Carroll, associate professor; Y. Wang, post doc; P. He, post doc; Anthony B. Brennan, Margaret A. Ross professor in Materials Science & Engineering; and W. El-Ratal, an engineer with Visteon, the company sponsor of the research. The Peterson Award is given for the Best Applications Paper published in *Experimental Mechanics* in a two-year period. The award was presented at the SEM X International Congress & Exposition June 2004 in Costa Mesa, Calif.

John K. Schueller, professor and associate chair, completed a three-year term as the external examiner/assessor for the Department of Biological and Agricultural Engineering at the Universiti Putra Malaysia. The Faculty (College) of Engineering at UPM has been ISO 9001 certified since 2000 and received the 2003 Award of the Chief Secretary of Malaysia for quality. The Faculty of Engineering was the only university unit among the public sector finalists for the award.

Gloria Wiens, associate professor, was appointed associate editor for ASME *Journal of Manufacturing Science and Engineering*.

Nuclear Engineering

James E. Baciak, assistant professor, joined the department in January. His research interests include radiation measurements, room temperature gamma-ray spectroscopy, instrumentation, scintillation detectors, compound semiconductor materials, and national security-nuclear nonproliferation.

Glenn E. Sjoden, associate professor, joined the department in March. His research interests include particle transport and numerical methods, convective

heat transfer, computational fluids, high performance computing applications, and nuclear systems analysis: medical, power generation, defense programs, NDT, and detection.

Florida Center for Solid & Hazardous Waste Management

John D. Schert, director, received an honorary Doctor of Science degree from Heidelberg College, Ohio in recognition of his contributions to the environmental field.

Engineering Faculty Receive Prestigious NSF CAREER Awards

Six engineering assistant professors received highly competitive National Science Foundation (NSF) CAREER awards this year for their research projects.

Chemical Engineering

Jason Butler: Dynamics, Rheology and Microrheology of Rigid Polymers and Brownian Fibers

Jason Weaver: Growth, Properties and Reactivity of Oxygen Phases on Noble Metal Catalysts

Computer & Information Science & Engineering

Christopher Jermaine: New Technologies for Online Aggregation

Markus Schneider: Database Integration of Space, Time and Uncertainty as a Foundation for Geographical Information Systems

Industrial & Systems Engineering

Zuo-Jun (Max) Shen: Designing Integrated Supply Chain Systems and Practical Market Mechanisms

Mechanical & Aerospace Engineering

Brian Mann: Measurement and Predictive Dynamics of Mesoscale Milling

CAREER awards support the early career-development activities of teacher-scholars who are most likely to be academic leaders in the 21st century.

Recent Research

How Team CIMAR Spent Spring Break

A compendium of impressions from Team CIMAR:

Professor Carl Crane
Team Leader and Director,
Center for Intelligent
Machines and Robotics

David Armstrong
Project Manager

Danny Kent
PhD student

Tom Galluzzo
PhD student

Michael Griffis
The Eigenpoint Co., High
Springs, FL (former student)

We first heard of the DARPA Grand Challenge in early spring 2003. We knew we had to enter if we wanted the world to know that CIMAR does first class robotics. We had to show what CIMAR can do.

It was clear by mid 2003 that putting together a team and finding funding would not be easy. Luckily, Autonomous Solutions, Inc. (ASI), a company in Logan, Utah was just as determined to enter the race and happy to have us for a partner.

Our plan at first was to take one of our existing CIMAR robots and add some new path planning software furnished by ASI. We guessed that, the first year at least, no one was going to actually finish this race. We just wanted to build something that would serve as the basis for our second year entry.

Reality began to set in when we checked out the race environment in the Nevada desert - in August - for



NaviGATOR at dawn in the desert.

ourselves. We rented two SUVs and outfitted them with GPS and other equipment.

We learned it wasn't easy for us, let alone for a robot.

We drove through canyons, over mountains, and along railroad tracks. When we needed to drive back to Las Vegas, we decided to go back over the desert instead of using the roads. We wanted to get back before dark and pushed our luck by driving too fast ... and got both cars stuck in the sand. It was 106 degrees,

and we tried to push one of the SUVs out of the sand with muscle power. No way, and we started thinking about how much it would cost to get the SUVs airlifted out. Maybe after dark we could just walk the 10 miles out to the nearest railroad and jump a train back. In the end, we buried rocks and car floor mats under the back wheels and got free. The whole episode lasted only about half an hour. Seemed longer...

The next reality check was finding out it was against the contest rules to use any of our existing robots or software because they originally had been developed with government funds. We had to start with nothing.

ASI came to the rescue with a vehicle, a smelly, beat up, dented, leaking, rusted, rolled over, window shattered, junkyard-ridden Isuzu Trooper. The challenge was to turn it into an automated ground vehicle intelligent enough to traverse 150 miles of the most dry, dusty, rugged, cliff hanging, tortoise riddled, barbed-wire-fenced stretch of road the Mojave had to offer.

At dawn on March 13, a squat brown vehicle crossed a line in the sand in the Mohave Desert. It halted less than a mile later, pinned down by barbed wire that it never saw coming. But for the UF engineers on Team CIMAR and their partners, the Utah company Autonomous Solutions, Inc., it was a tactical victory. After a year of hard work and frustration, their robot car NaviGATOR was in the race called the biggest robotics competition in history: the DARPA Grand Challenge.

The car, once identifiable as a 1992 Isuzu Trooper, was one of 15 vehicles selected for the race from among nearly 90 contenders. DARPA - the Defense Advanced Research Projects Agency and the central research

and development organization for the US Department of Defense - sponsored the competition and offered a \$1 million prize to an autonomous vehicle that could complete a 150-mile race course within 10 hours. The course would be across the desert from Barstow, California, to near Las Vegas, Nevada.

No one got the money prize. Some racers never got past the starting line. The experience was what mattered. Team CIMAR has shared a little of it with *The Florida Engineer*.

(CIMAR is the Center for Intelligent Machines and Robotics, based in the Mechanical & Aerospace Engineering department at the UF College of Engineering.)

NaviGATOR is born

We had, at that point, 60 days to build the most sophisticated autonomous vehicle in the world.

We created a sensing system so the car could find a smooth path among obstacles and developed a database with information about all the known routes through that part of the desert. ASI provided the components that would plan the travel path based on the information shown by the sensors.

ASI shipped the vehicle to Gainesville. On January 21 it arrived. We installed the software and hardware, and we named it NaviGATOR.

After we got the vehicle ready at the CIMAR lab, we needed to test it. It was too big (5,000 lbs) and needed to go too fast (up to 30 to 40 mph) to test it on campus. Don Robertson, manager of the Gainesville Raceway, let us use their road course test track. On February 20, the NaviGATOR raced down the quarter-mile track at 28 mph with an elapsed time of 35 seconds. Official timing equipment established this as a record for the first unmanned quarter mile in history.

The next day we started our road trip west, first to Logan, Utah, to do final details on NaviGATOR and then on to Barstow, California, for the race. We braved Utah's cold and snow to fine tune NaviGATOR. We couldn't test it properly there – the freezing rain shorted out the steering control. Conditions looked so grim, we almost felt like giving up. With heat guns and towels and one new component, however, we were in business again, and we were off to Barstow.

By March 5, the entire team showed up in Barstow. The road crew was thrilled to see friends who were energized and enthusiastic and ready to face around-the-clock work days. The weather was dry, the setting ideal, and in the dark of night Monday, March 8, NaviGATOR was moved to the California Speedway for the final qualification trials. The first run was to be that morning on the obstacle course to show if the vehicle could autonomously navigate without hitting anything.

This was it, ready or not. The tower started the countdown. Three, two, one, go. Go! Go you stupid machine! What happened?!! Why didn't it go?

Because, as it turned out, we had been using a different start up procedure than the one used by the DARPA officials. We fixed it. We were scheduled for a second run on Wednesday. NaviGATOR did fine that day, going around all the cones, through two narrow fence ways, around three parked cars, under a bridge and ...nowhere, because we lost the GPS signal under the bridge.

That night we added an inertial navigation unit donated by Smiths Industries that would maintain the vehicle's position for the short time it was under the bridge.

We had fixed one thing after another. We didn't know if we were going to qualify after all. Friday morning, the DARPA officials announced that only 15 teams had made the final cut for the race. They announced the teams in order from number 15 to number one. We were team nine. Relief.

That day we packed up and moved to the official race starting point at the Slash X Café (really) in Barstow, California. On Friday afternoon, we were allowed to practice getting out of the chute and navigating the first 100 meters of the course. At

3:50 a.m. Saturday we were given the data file about the course pathway. We had two hours to process the data and come up with a path that would lead us to Primm, Nevada. We only had time to plan approximately 20 miles of the course, but we were happy with that.

We were pretty excited as race time neared. The press was there, the grandstands were full, and we sent NaviGATOR off with a final Gator chomp.

We didn't make 20 miles. We watched NaviGATOR move into the distance and just stop. We found out later that it had clipped a barbed wire fence and had wire entangled around the front axle. NaviGATOR had gone 0.6 miles.

And it was fine. It was great. It was one of the high points of our lives, and no amount of barbed wire can take that from us.

DARPA says that in about 18 months it will hand out \$2 million to anyone who wins the next Grand Challenge race. Watch our dust.

Martha Dobson

<http://www.me.ufl.edu/CIMAR>

NaviGATOR's home team. Left to right: David Armstrong, engineer Carl D. Crane III, professor Danny Kent, PhD student Sanjay Solanki, PhD student Roberto Montane, PhD student Carl Evans, MS student Duk Sun Yun, post doc Chad Tobler, MS student Erica Zawodny, PhD student Donald MacArthur, PhD student

Standing:

Mary Ahmed, MS student Bob Touchton, PhD student

Sitting in vehicle:

Tom Galluzzo, PhD student



Recent Research

I, Robot, Will Work for You

iRobot's robots have searched hidden passageways in the Pyramids, scoured enemy caves in Afghanistan, and journeyed miles underground to fix broken oil lines.

But the Massachusetts-based robotics company's Roomba Robotic FloorVac robot vacuum cleaner may have scored the company its proudest achievement, said co-founder and president Helen Greiner.

"The place we're proudest of getting into is under your children's beds," Greiner told a bemused audience of engineers, businessmen, students, and others at a robotics conference at the University of Florida in March.

Greiner spoke as part of the American Nuclear Society's 10th International Conference on Robotics and Remote Systems for Hazardous Environments March 28-31 at the University of Florida Hotel and Conference Center. Devoted to the safe and reliable application of robotics and intelligent systems in hazardous and remote environments, the conference featured a range of seminars, exhibits, and meetings and drew attendees from companies and universities across the nation.

Robots, Greiner said, have reached a "tipping point" in the transition from science fiction and industrial uses to commercial and home applications.

She cited the Roomba floor vacuum as at the forefront of this trend – "the first of many robots that will do chores around the house...without you ever having to think about them anymore."

Available in over 4,500 stores nationwide, the Roomba, the most expensive version of which sells for about \$250, is a Frisbee-sized disc that scoots around vacuuming carpeted and wood floors without human direction. Owners need only periodically recharge the cordless machine, which is engineered so that it doesn't fall down stairs or get stuck in tight crevices or unforgiving corners.

Many people have been introduced to robotic vacuums through the ubiquitous Pepsi commercial, which features a jazzed-up Roomba-like vacuum challenging a man for his Pepsi – and leaving him to meet his date in his boxers.

"We at iRobot didn't have any part of this commercial," Greiner said. "It was the creative minds at Pepsi. But the ad shows how far these robots have come."

Greiner also showed off other iRobot projects, such as the PackBot, a small unmanned reconnaissance robot built for the military. She played a video showing soldiers sending a camera-equipped PackBot to explore enemy territory in Afghanistan. Another clip featured a soldier throwing the robot through a window



into an abandoned home. Shortly after it slammed onto the ground, the robot zoomed off into another room, demonstrating its hardiness in tough conditions.

The PackBot - which gets its name from the fact that it can be transported in a soldier's backpack - could be used for purposes ranging from search and rescue missions to detecting chemical or biological warfare agents, Greiner said.

Greiner said iRobot is working on even more futuristic robots, including models that fly and others that duplicate the vertical wall-climbing abilities of geckos. In a brief interview after her speech, she added that universities such as UF play an important role of imagining future robots and applications.

"I see the universities as really asking the question 'what's next?'," she said.

The ANS conference was chaired by James Tulenko, UF professor of nuclear and radiological engineering, with professor emeritus and former interim engineering dean Jack Ohanian serving as honorary chair. It was sponsored by the ANS Robotics and Remote Systems Division, the American Nuclear Society Florida Section, the Defense Advanced Research Projects Agency, Alachua County, the IEEE – Robotics and Automation Society, the UF College of Engineering Nuclear & Radiological Engineering department, and the Center for Intelligent Machines and Robotics.

Aaron Hoover

<http://www.nre.ufl.edu>



Photo by Ray Carson - UF News and Public Affairs

UF Engineer Redesigns Classic Archery Bow to Shoot Farther, Easier

Inspired by the workings of a tape measure, Dave Jenkins says he has found a way to improve the bow used by hunters and warriors since antiquity without radically changing its form.

Jenkins, a mechanical and aerospace engineer with a longtime interest in archery, has redesigned the classic bow so it is easier to pull and shoots farther. Unlike the modern compound bow, a popular 30-year-old design that relies on a complicated system of pulleys and cables for its enhancements, Jenkins' adaptation is not easy to distinguish from the familiar model still used by traditionalist hunters and indigenous people worldwide.

"My bow has many of the performance characteristics of the compound bow but without all the cables and gizmos," said Jenkins. "It doesn't weigh much, and it's simple and easy to carry. With these compound bows, you feel like 'Rambo the Commando' or something."

The bow, patented by UF last year, may be of interest to bow hunters and target archers. Nationwide, there are roughly 3.5 million licensed bow hunters, said Mary Beth Vorwerk, speaking for USA Archery, an industry trade group. The total number of target and hunter archers

nationwide is unknown, but the National Sporting Goods Association estimates the figure at 6 million.

Invented in 1969, the compound bow uses pulleys known as eccentric cams to make the string easier to pull as an archer draws the bow. This draw gets harder with traditional bows, which is one of the reasons it was revised. Compound bows are also easier to hold cocked at full draw, which improves shooters' accuracy because it makes aiming more comfortable.

With a traditional bow the string travels at maximum acceleration the moment it is released, tending to wobble the arrow as it clears the bow. This has the effect of slowing and shortening its travel distance, Jenkins said. With a compound bow, the string hits peak acceleration near the end of its movement, which sends arrows on a straighter and thus faster path.

Compound bows comprise the vast share of the archery market. They are so popular, Jenkins said, because they allow hunters and archers who might otherwise not have the necessary strength to shoot arrows forcefully and accurately.

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UPDATE

Barge vs. Bridge Experiments in Panhandle Waters Finished

A tugboat captain guided a 150-foot, 800-ton barge up a bay and pointed it at a bridge with one goal in mind: to ram it.

It sounds like the beginnings of a tragedy. But that's just what the massive experiments carried out this spring in Apalachicola Bay in Florida's Panhandle were designed to prevent. Headed by University of Florida engineers and sponsored by the Florida Department of Transportation, the experiments - which involved several barge vs. bridge rammings - were aimed at reducing the cost of bridge construction while making them safer.

"There is very, very little information available that deals with the actual impact load when a barge strikes a bridge," said Henry Bollmann, FDOT's senior bridge designer. "This will fill in the blanks, and it will affect national and international bridge-building codes."

The barge tests were not designed to bring down the recently closed "old" St. George Island Causeway Bridge spanning the bay from the small town of East Point to St. George's Island.

Its replacement, the 4.1-mile-long Bryant Grady Patton Bridge, opened early this year, and most of its 1960s-era predecessor is now slated for demolition.

The tests were intended to jiggle the innards of more than 150 carefully placed sensors on the barge and the bridge. The result: What UF and FDOT engineers describe as the first-ever microsecond-by-microsecond glimpse of the forces that unfold in a real-world calamity.

Gary Consolazio, UF civil engineering assistant professor and lead researcher on the project, explained that when bridge engineers design structures currently, they rely on nationally adopted standards. Those standards are based on tests using scale models.

While scale model tests are thought to provide good data, they are not as accurate at determining the forces on the bridge resulting from the crash as the real thing, he said. However, until now, no one had taken the opportunity to conduct tests on real barges and bridges.

"Quite simply put, you can't run a barge into a bridge intentionally if the bridge is in service," Consolazio said. "There are just massive safety issues involved."

Today's standards typically require engineers to design bridges that will remain standing while sustaining several million pounds of "static" load, or load that doesn't change over time, Consolazio said. Those specifications vastly increase the amount of concrete, steel, and other materials used in the supportive piers, or underpinnings, and significantly raise the cost of building the structures, he said.



Data from the tests may reveal that this huge load declines quite a bit after impact rather than remaining constant, which may mean the standards could be loosened in some cases, significantly reducing the cost, Consolazio said. Alternatively, the tests could reveal that the standards are correct or may need to be strengthened in some cases, he said.

“If it turns out the loads are smaller than what we are currently designing for, that could have a major economic impact, because the foundations of a bridge are such a massive component of the cost of construction,” he said. “On the other hand, if it turns out that the loads are larger than we are currently designing for, then obviously from a public safety standpoint we want to know that.”

The possibility of improving bridges’ safety is a top goal of the tests - and one of the reasons the FDOT is spending an estimated \$1 million on the project, Bollmann said. Boh Brothers Construction, the

contractor that just completed the replacement bridge, also assisted.

Although rare, fatal accidents involving downed bridges are not that uncommon. In Florida, the most infamous dates back to 1980, when a freighter knocked out part of the Sunshine Skyway bridge, plunging 35 people to their deaths. Two years ago, a barge struck the Interstate 40 bridge spanning the Arkansas River in Oklahoma, killing 14. In 2001, another barge vs. bridge incident in Texas killed eight.

With its extensive coastline and lengthy Intracoastal Waterway, Florida is a hot spot for barges toting fertilizer, coal, petroleum products, and other cargo, Bollmann said. Several hundred of the state’s roughly 10,000 bridges span bays and waterways deep enough for barge traffic, he said. Although there hasn’t been a fatal barge vs. bridge accident here in recent memory, the FDOT is concerned about the possibility - particularly in light of the Sept. 11, 2001, terrorist attacks.

“People are concerned that terrorists could use a vessel to knock a bridge down,” he said, adding that the experiment was already in the planning stages before the Sept. 11 events.

As part of the tests, researchers shoved the barge into two different piers, a large one near the shipping channel and a smaller one farther away. The big pier was scheduled for the maximum punishment, with a tug slamming a barge into the pier at maximum speeds of about 6 mph, typical for barge traffic. Load sensors, accelerometers, and other sensors recorded the force the barge imparted to the pier, how much the pier moved following the impact, and other data, Consolazio said.

Initial analysis of the experimental data will take about six months. Researchers will combine the data with computer models to develop revised bridge design specifications, Consolazio said.

Aaron Hoover

<http://www.ce.ufl.edu>

The bridge and barge, post impact, show little visible damage. Studies of the electronic data gathered from the tests will reveal if hidden damage could weaken the bridge structure.

Students

UF Hosts ASME 2004 HPV East Coast Challenge

The University of Florida hosted this year's American Society of Mechanical Engineers Human Powered Vehicle (HPV) East Coast Challenge May 7-9. The competition included a safety inspection, design presentation, and sprint and endurance events. Vehicles were divided into three classes: Single Rider, Tandem, and Utility. The UF team won first place overall in the Tandem class and second place overall in the Utility vehicle class.

The UF tandem alloy bike, Instigator II, was built to compete as a multi-rider utility HPV. Two riders sit back-to-back on the vehicle. The chromoly steel bike is a front two-wheel steering, single rear drive wheel (tadpole design).

Patricia Casey



UF Mechanical & Aerospace Engineering students Frank Hartman (rear seat) and Jacob Stoval (front seat) pedal the Instigator II during the safety inspection. Riders must show that the vehicle abides by safety guidelines. Some requirements include making a complete stop in a distance of 20 feet or less from a speed of 15 miles per hour, traveling in a straight line for 100 feet, and negotiating a turn within a 25-foot radius.

ITV Students Create Winning Company

The Integrated Technology Ventures (ITV) program virtual company, Enviroflux Corporation, won first place and \$6,000 in the undergraduate division of the Howard J. Leonhardt Business Plan Competition. The students who developed the Enviroflux Corp. business plan are part of the pilot ITV program. The business team did an outstanding job on the business plan, and the engineering team completed excellent work on new prototype designs. The judges emphasized that the obvious cooperation demonstrated between the business team and engineering team, even after experiencing a change in CEOs in late January, distinguished this group.

Enviroflux is a start-up company built around a system for monitoring groundwater for organic and inorganic contaminants. The system was invented by associate professors Kirk Hatfield, Civil & Coastal Engineering, and Michael Annable, Environmental Engineering Sciences, and patented by the University of Florida.

Participants on the winning team included a professional business CEO, coaches from the colleges of Business and Engineering, and business and engineering students. Members of the team were:

Jared P. Kennedy (CEO)

From the College of Engineering:
Kirk Hatfield
Michael Annable
E. Dow Whitney (Engineering team coach)
Nathan Abdalian (MAE student)
John Ligas (MSE student)
JP Amazega (MAE student)
Brett Washmuth (ISE student)
Beth Bevc (ENV student)

From the College of Business:
Bill Rossi (Business team coach)
Matt Tilman (MBA student)
Nathan Fuentes (BA student)
Jay Stanard (BA student)

Mechanical & Aerospace Engineering Flies High in Competition

Students and faculty from the Mechanical & Aerospace Engineering (MAE) department continued to show the right stuff at contests this spring.

The University of Florida micro air vehicle (MAV) team won first place in the overall scoring at the 8th International Micro Air Vehicle Competition, April 9-11, hosted by the University of Arizona. UF has taken first place every year of the competition.

The University of Arizona took second place and Brigham Young University was third. Fourth place went to RWTH Aachen University and Konkuk University, Korea was fifth.

In individual events, UF was first in MAV surveillance with a plane that set a new small wing span record of 5.25 inches. Another UF plane with a record small wing span, 4.5 inches, took first in the MAV endurance competition. The plane flew for 14 minutes and 54 seconds.

In the ornithopter competition, UF took second place. (An ornithopter is a machine that flies by flapping its wings.) UF also took second place in the design competition.

For more information about the MAV competition, please visit the 2004 competition Web site: <http://www.engr.arizona.edu/MAVcompetition/>.

Patricia Casey



Peter Ifju, aerospace engineering associate professor, shows off UF's newest micro air vehicle.

continued from p.21

But Jenkins, an experienced hunter, said the bows leave much to be desired aesthetically because they are so machine-like.

He was casting around for ways to improve traditional bows when he was inspired by a tape measure on his desk.

Tape measures have a slight curl in their horizontal surface, which gives them considerable strength when they are extended in a straight line. As soon as gravity or some other force straightens the curl, however, they bend easily,

which is how these seemingly straight objects retract into a circular coil in the case.

Like a tape measure, Jenkins' bow has a slight horizontal curl everywhere but the handle. As the archer pulls the string, the curl gradually straightens, making the bow progressively easier to pull. When the archer releases the arrow, the bow's curl returns, adding power to the arrow's flight. As with the compound bow, the moment of maximum power occurs as the arrow clears the bow, when the bow reaches its full curl, which also improves accuracy.

Jenkins said his bow isn't as effective as a compound bow, but it is superior to the traditional type. Although he said he hasn't done enough testing to peg the amount of improvement with certainty, he estimates it makes arrows fly about 10 percent faster than traditional bows.

As an engineering student at UF in the early 1960s, Jenkins, then active in target archery, said he toyed with the idea of improving the classic bow using the concepts he was learning in his classes. But, he never followed through, leaving the compound bow to be invented by someone else, he said.

"I kept thinking, there has got to be a way of making a better bow with pulleys and cables," he said. "But I never did it; I dropped it. This time I'm going to finish it."

Aaron Hoover

<http://aemes.mae.ufl.edu/~daj/>

Students



Students Have Lively Engineers Week Celebration

The College of Engineering celebrated Engineers Week Feb. 19 – Feb. 28 with many activities for students and the community.

The second annual Graduate Recruitment Weekend hosted more than 200 potential graduate students who met with department faculty to learn about research and degree programs.

The Engineering Leadership Forum brought industry leaders to the college to share advice with students. The forum included career development and graduate school workshops.

High school seniors who will enter the College of Engineering in summer or fall 2004 visited the UF campus for Gator Shadow Day to experience a typical day in the life of a UF engineering student.

The 59th annual Engineering and Science Fair brought students, faculty, and business leaders to UF to display current research, provide a meeting ground for students and potential employers, and spark



the interest of young visitors in scientific fields. The Alachua County Regional Science Fair also took place in conjunction with the E-Fair.

College of Engineering students held an Engineering Extravaganza on the North Lawn of the J. Wayne Reitz Union. Even though the weather was cold, all UF students were invited to warm up by taking a bungee run, climbing the rock wall, or jumping in the moon walk.

The Institute of Industrial Engineers 2004 Regional Student Conference, hosted by Industrial & Systems Engineering department students, also took place during E-Week.

For fun, the week wrapped up with the Florida Engineering Society 19th Annual Golf Tournament to benefit the Ronald McDonald House of Gainesville and the Society of Hispanic Professional Engineers' 2nd Annual 5K "Run for Tomorrow" on behalf of the School for Chiapas Charity.



College of Engineering Endowed Funds

Virtually every aspect of the university benefits in some way from endowed funds. Endowed cash gifts are invested in the UF Foundation's investment pool and generate permanent income for each fund. Endowment income is vital in the support of scholarships and fellowships, professorships, programs, and other academic enhancements.

Moreover, endowed funds are perpetual gifts, linking past, current, and future generations. They enable the university to make commitments far into the future, knowing that resources to meet those commitments will continue to be available.

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Development Report

“A university does not exist to make profit but rather to teach and to enhance scholarship and learning. A university, of course, is expected in this modern day to make the expertise of its faculty – when needed and when possible to do so – available to solve immediate, emerging problems of society... The university is therefore an organization designed to take the resources made available to it and, rather than hoard them, use them as effectively as possible for achieving its central purpose.”



Herman B Wells, 1902 – 2000, Educator

Dear Friends,

Herman B Wells’ words so aptly capture the mission of higher education; They also embody the standard of education for the College of Engineering. The college is charged to provide the state of Florida with the resources which are required to benefit society for the greater good.

The college, through its research and public service, continues to strive to meet the needs of today’s world with a strong will to expand the boundaries of knowledge in the pursuit of what is possible and that which may only be theoretical for the next generation.

As engineers and supporters of the field, you have made it clear through your gifts that you are taking ownership in this pursuit. Your annual support, special gifts, and consideration of the college in your wills and bequests underscore your belief in the ideas of each faculty member and student of the College of Engineering.

In an almost silent profession, engineers make the world safer, stronger, and more able to grow in a myriad of ways imaginable on a scale so grand one can only capture small snapshots of the importance of this noble profession. It is this pursuit of excellence which drives the University of Florida College of Engineering.

It is also in this pursuit that the College of Engineering thanks you for your acknowledgment of the great achievements of this college now and towards the future. The quest for new knowledge and the desire to expand the world exponentially are not free, but require belief in the support of these ideals.

To teach the next generation while remaining grounded in today’s challenges provides the ultimate task for a university. The University of Florida College of Engineering is pursuing this task and making great strides as a leader in the state, the nation, and the world.

Thank you for your personal investment in the pursuit of this profession and know that the ownership you have provided in these pursuits is sometimes boldly, but more often quietly, changing the world in which we live – and will live in.

Your generosity has not gone unnoticed and is gratefully appreciated.

Most sincerely,

*Pramod P. Khargonekar
Dean*

Our development team is ready to assist with any questions about gifts to the College of Engineering.

E. Stevens Beeland

Senior Director of Development
E-mail: sbeeland@eng.ufl.edu

Edward M. Kominowski

Director of Development
E-mail: ekominowski@eng.ufl.edu

C. Ellis Pope

Director of Development
E-mail: epope@eng.ufl.edu

Engineering Development Office
College of Engineering
University of Florida
P O Box 116575
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Every effort has been made to ensure the accuracy of this report. We sincerely apologize for any omitted, misspelled or misplaced names. To report any inaccuracies, please contact:

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David H. Confessor
Carole A. Cosenza
Melissa A. Currin
Kimberly A. Cutler
Douglas D. Dankel, II
Richard E. Davidson
Janet D. Degner
Robert T. DeHoff
Sarah B. & Joshua C. Dickinson III
Linda D. Dlouhy
Bruce A. Duke
Laurie Dunivant
Eva L. Eichhorn
Nicholas L. Ellis
William H. Ellis
Kernaaz K. Engineer
Thomas N. Evans III
Richard L. Fearn
Elliot Field
Edmund A. & Jill D. Fitzgerald
Robert M. Fox
Tonya D. Fulton
Loren P. Furland
Edith L. Gadson
Sharon B. Gilmore
Donald W. & Joyce L. Hearn
Gene & Evelyn Hemp
Paul H. Holloway
Mark L. Homer
Kim K. Hood
Gail S. & Robert H. Howell
Shu-Min & Chung K. Hsieh
Joshua S. Irwin
Bengt-Ove Jansson
Douglas B. Jones
William H. Judd, Jr.
Sumer & Layatee Kahook
Richard L. & Linda Kegg
Jihyun Kim
James N. & Patricia Kremer
Gwendolyn R. Kyles
Haniph A. Latchman
Sheng San Li
Robert R. & Cheryl K. Lindgren
Ralph L. Lowenstein
Emily A. Madden
Gertrude S. Margolick
James H. McClelland
Elizabeth A. McMahan
Rishabh Mehandru
Janet W. Middleton
David W. Mikolaitis
Jack Moore
Robert J. Murphy
Gale E. Nevill, Jr.
Charlotte C. Nichols
Toshikazu Nishida
Esther E. & Frank G. Nordlie
Kathleen W. Pagan
Steven G. Page
Caroline J. Penn
Loretta F. Person
Wendy C. Phillips
Mary M. Pitts
Evelyn H. Pringle
S. Caprice Rosato
Robert G. & Peggy S. Royce
Byron E. Ruth
James H. Schaub
John K. & Malini J. Schueller
Sherry G. Seabrook
Rachel K. Seifer
Kathleen M. & John R. Shue
Wendy J. Simpson
J. Michael & Toba M. Smith
Fay A. Snyder
Ramakant Srivastava
Jamie W. Stone, Jr.
Ela K. Sutton
James D. Tanner
Charles E. Taylor
Christine W. Terrenyi
Hana Tlusty
Frank & Marvel Townsend
Quyen T. Tran
T. Troupe Turner
Helen T. Twedell
Robert E. Ulanowicz
Martin A. Uman
Chandrashekhar M. & Asha C. Vaidya
Bettie Jean Walker
Phillip C. Wankat
Robert R. & Patricia A. Weiss
John F. C. White
Elwyn M. Williams
Karen C. Williams
Joseph N. Wilson
George W. Wood, Jr.
Alice B. Yen
Dora & Paul Zia
John C. Ziegert

Alumni

1930

William R. Clarke

1935

Albert E. O'Neill
Colbert W. Wilkins

1936

Maj. Gen. John R. Alison

1937

John P. Lenkerd
Homer V. Thompson
Joseph P. Woodward

1939

Alvis G. Green

1940

Allan M. Biggar
Burney B. Cowden
Curtis H. Stanton

1941

Robert B. Morton

1942

Colonel John W. Bennett
Lewis E. Cooke, Jr.

1943

Melton L. Augustine
William T. French

1944

Ralph C. Harkness
Samuel J. Kolner

1946

Pierson P. DeJager

1947

James C. Bryan
John B. White, Jr.

1948

Gordon W. Dykes
Samuel A. Jordan, Jr.
Melvin A. Shader
J. Pasco Sweat
Thomas F. Thompson, Jr.
Eugene L. Williams, Jr.

1949

Charles H. Asche
Robert L. Collie
Frederick B. McNeely
S. Edward Miller
John W. Mills
Richard C. Mills
John W. Mueller, Jr.
Ernest T. Oskin
Charles H. Sain
Lee H. Scott
Archie Wakefield, Jr.
Furman C. Whitaker
J. Cullen Wright

1950

Harold L. Boyd
Steve A. Carter
Milton Chambers
Arthur R. Finney, Jr.
James D. Gammage
Robert D. Graf
James A. Grinnan, Sr.
William E. Gunson
Charles G. Houriet
Stephen B. Hovan
E. Smith Laws
Robert A. Lynch
Charles R. Miller, Jr.
William F. Miller
Frederick W. Oglivie
Robert L. Olive
Mr. & Mrs. John F. Pearce
Jack H. Smith
Jack L. Thomas
Samuel M. Thompson, Jr.
James Yontz, Sr.

1951

Sidney L. Barker
David E. Brandt, Jr.
John M. Buslinger, Jr.
Gordon Hays, Jr.
James A. Henderson, Jr.
George N. Henn, Jr.
James D. Mattox
Lester M. McClung, Jr.
Cecil H. Rowland
Robert S. Russ
Arnold J. Sietz
William R. Thompson III
James L. Turnage, Jr.
Henry F. Weisenburger, P.E.
David A. Whitston, P.E.
Benjamin F. Wilson
James M. Woodard

1952

Robert B. DeVeny, Jr.
Leslie H. Harvey
Jefferson R. Kirkpatrick
Louis C. Palmer
Vincent B. Pickett
Bartow T. Robbins
Robert K. Sawyer
Paul D. Schulz
Edward J. Telander
William L. Watson

1953

John G. Burrows, Jr.
Frederick R. Crowley
Stanley K. & Edith W. Ink
James W. O'Kelley, Jr.
Harvey H. Purcell
William B. Ruhlman
William L. Wood

1954

Richard H. Boerma
Louis P. Bosanquet
Carl H. Bowles, Jr.
Charles E. Branning
Warren P. Huff
Thomas E. Martin
Elwood P. Padgett, Jr.
Ernest M. Salley
Orlo M. Shultz, Jr.
William A. Snell

Morris G. Whitcomb, Jr.

1955

Hillard H. Allen
John A. Andersen
Roger L. Cox
Windell A. Dixon, Jr.
Robert B. Fray
Gordon J. Hennon, Jr.
Robert W. Lamb
Eugene A. Lichtman
Sung Y. Lu
LeRoy H. Ludi
Park B. Meiter
John V. Searcy
William R. Spenninger

1956

Joseph T. Beresheim, Jr.
James E. Blanton, Sr.
H. Norman Bott
James H. Bragdon
Arthur W. Brooke, Jr.
Glenn L. Bryan
Richard F. Crabtree
Herbert J. Crenshaw
Eugene Gilmore
Edwin M. Green, Jr.
Vern R. Hammond
Oscar E. Hayes
Ben F. Kickliter
Charles E. Langbein, Jr.
Thomas R. Mayhew
Samuel H. Nassiff
Allen J. Richardson
Credo Schwab
Howard L. Searcy
Marvin Y. Shankin
E. Fred Sharp, Jr.
Margaret D. Varner
Robert N. Willis

1957

Nathan M. Banes, Jr.
Roger V. Burry
Arthur F. Camp, Jr.
Richard H. Caro
Jerrrie L. Chandler
C. James Crooker
Robert W. Duckworth
Herbert S. Hovey, Jr.
Clifford E. Manuel
William C. Morgan
Edwin P. Moure
Richard A. Newell
B. Douglas Pearson, Jr.
Dan C. Pinney
Milton B. Rogers
Jackson S. Simpson
Albert A. Stoddard
E. Thomas Torrence
Robert W. Vincent
Thomas E. Wetmore
Warren O. Woolsey
Cortland E. Young, Jr.

1958

George E. Allen, Jr.
Edward H. Beardsley III
Orburn R. Bloodworth, Jr.
Walter L. Elden
Doyle D. Garner
James A. Gerwe
Byron V. Hall, Jr.
Peter E. Hastings
Richard A. Jemison III

Alan G. Krigline
Comdr. Thomas M. Maroldy
William A. Massey
Dayle A. Parkes
Fred & Marjorie M. Pitts
Norman J. Price, Jr.
William J. Rutledge, Jr.
Capt. Albert H. Story
Samuel S. Tucker
James A. Wachob
Loren H. Walker

1959

Jack E. Bond
Robert W. Bowman
Charles E. Brown
Donovan D. Buell, Jr.
Russell S. Buker
Richard H. Dewey
Richard G. Donald
William Y. Harrell
Paul F. Horsman
Samuel D. Hunt
Albert T. Johnson
John G. Kammerer
Dan G. Mizelle
Virgil V. Moore III
Bill G. Oaks
Richard E. Pesola
Lawrence J. Ramaekers
Vernon P. Roan, Jr.
Fred L. Robson
George H. Shipley, Jr.
I. Clay Thompson, Jr.
Ralph C. Unkefer
James R. Wheeler
Edwin L. Wilson

1960

Karl M. Allison, Jr.
Sumpter H. Barker
James K. Channell
Howard A. Davies
J. Gordon Davis
Robert S. Dean, Jr.
Roger E. DeVore
Lowell H. Elliott
James E. Hansen
John J. Harkins
George W. Harper
Richard B. Hellstrom
David W. Henn
James H. Jones
Ronald M. Kaplan
Agis Kydonieus
Marvin J. Lopez
Leonard H. Lund
Richard T. Lynch
Martin E. Perkins
Robert L. Peterson
James R. Piche
Larry P. Robinson
Charles L. Roux
Clifford W. Schoonmaker
David Silber
Robert C. Staiman
Lawrence I. Takumi
Thomas S. Walton

1961

William D. Allen
Paul H. Bedrosian
Manuel V. Benzin
Donald T. Branning
Richard H. Chastain

Shang I. Cheng
Arthur N. L. Chiu
Henry O. Cleare
Donald L. Dickinson, Jr.
Marcelo Lara
John L. McCullough
Walter D. McDaniel
Roger F. Moonen
David H. Neely
Stephen R. New
Nilo & Norma F. Priede
James R. Putney
Stephen Arnold Schneeberger
Edgar F. Seagle
W. Kelly Smith
Thomas R. Starratt, Jr.
Lewis H. Strickland
Paul G. Suchoski
Edward B. Thayer
Baxter L. Thorman
Woody Woodall

1962

Lt. Col. William J. Barnes, Jr.
Leonard S. Bernstein
Gordon S. Burleson, Jr.
William S. Caruthers
William L. Dillion
Hans F. Due, Jr.
Murray W. Garbrick
Ferrell L. Gay
Robert M. Handley
Edwin J. Heisel, Jr.
Wayne B. Howard
Walter A. Johnson
John W. King
Robert S. Lawrence
Jeffrey M. Lazar
Mr. & Mrs. E. Woody Lingo
Leonard J. Lyons
George Mayer III
Richard M. Munday
Waylon A. Neese
Thomas E. Ohmstede
Roy B. Simmons
William T. Sprott III
Ronald C. Talcott
Rhea T. Van Arsdall II
William R. Young
George G. Zipfel, Jr.

1963

Mr. & Mrs. Charles H. Bolton III
James A. Burgess
John P. Church
James M. Degen
Marion O. Eikeland
Julian G. Farrow
Joseph W. Fennell
Daniel C. Gionet
Robert L. Goodmark
Paul H. Grigsby
Paul M. Hanson, Sr.
Ronald C. Houts
Paul D. Hunter
Stanley L. Livengood
Thomas J. Loomis
Sam H. Mack
George E. Marks
Gary E. C. Minns
William K. Parker
Walter D. Patton
Robert A. Pensa
Kenneth A. Perkins
Jeffrey A. Perls

James A. Proctor
Thomas T. Raymond
Albert D. Schmidt
Roger K. Seals
William L. Storch
Marshall R. Turner
Maryly Van Leer Peck
Edward E. Warwick, Jr.

1964

Marion C. Bartlett
Edward L. Bernstein
Richard C. Burner
Leo L. Carey
Jay L. Carter
Ransom F. Gladwin III
Michael C. Guidry
Robert W. Haight, Sr.
Robert D. Hutson
John H. McDaniel
Frank J. Munno
James R. Shackelford III
Douglas B. Smith
Edgar A. Starke, Jr.
William L. Vaughters
Bennie G. Williams
John C. Wilsky

1965

Fred S. Aaron
Alva C. Atkins
Thomas P. Barbee
W. Stewart Boots
Philip J. Caliendo
Barry B. Diamond
Dennis N. Frankle
Antonio M. Garcia
James W. Harrington, Jr.
Philip J. Hoffmann, Jr.
George D. Jennings, Jr.
Ronald D. Kaylor
George R. Knecht
Daniel E. Knowles
Barnett J. Mandell
Harley L. Miller
Richard H. Morris
Thomas K. Mueller
Richard B. Reuss
William D. Rigdon
Joseph B. Tong
Robert L. Travis
Manuel R. Vilaret
C. Jeffrey Willis

1966

Brian D. Austin
Joseph W. Beasley
Max M. Brown
Chris A. Catsimanes
John C. Clark, Jr.
Peter M. Daniher
Robert F. Ehr, Jr.
Miguel A. Hernandez, Jr.
Lloyd W. Hodge, Jr.
George W. Howell
Donald G. Jackson
Herbert E. Keeler
Ron Kreskey
Samuel A. Leslie
James D. Marks
Ronald J. Michalak
William L. Norris, Jr.
John E. Oliva
Roger E. Osborne
Gerald O. Priebe, Jr.

Harry M. Schindehette, Jr.
Harry Z. Silsby II
Howard C. Vanzant
Larry W. Whittington
Earl J. Williams
Victor A. Zaloom

1967

John S. Aiton
Warren A. Birge
Charles A. Bisselle
Roger B. Broderick & Tonia M. Osborne
Leslie K. Clarke III
Jerauld L. Dickerson
John W. Ditsler
Peter R. Garland
Samuel D. Harkness
Curtis B. Joyner
John W. Koger
Richard F. LaFlamme
Vinson F. Lamb
Richard F. Malzahn
N. George McRae
C. Dwight Nicholson
James K. O'Steen
Melvin R. Phillips
Reginald J. Rodriguez
Bruce J. Rogow
Alan C. Seraphine
James C. Seymour, Jr.
Nevins C. Smith, Jr.
James H. Steele, Jr.
Michael D. Stephens
Donald Sytsma
Joseph Varon
James D. Wade

1968

Lawrence W. Ackley
Charles G. Annis, Jr.
Emile A. Bernard
Jack L. Bonney
Stephen M. Bull
Raymond M. Clock
Leon W. Couch II
Frank P. Crowder
Curtis J. De Young
Chand Deepak
Jon D. Dickerson
David L. Echols
Richard A. Fifer
Rufus J. Frazier, Jr.
Edmund L. Gallizzi
David S. Handshu
D. Bruce Harris
Robert E. Harris
Kin H. Luk
Arsenio Milian
William S. O'Brien
Victor W. Randecker
A. Lamar Reeves
Paul D. Rodebaugh
Fred J. Salem
Satyendra K. Shoor
William N. Stuart, Jr.

1969

Lt. Col. Richard W. Benton
Kamlesh K. Bhatia
Larry M. Bowyer
Lawrence R. Brady
John D. Caldwell, Sr.
Arthur A. Camero
George W. Clark, Jr.

Edgar T. Clarke
Leland L. Coons
Thomas J. Dorman
Mark I. Farber
Thomas E. M. Fears
Pete Garcia
John P. Giolma
Bruce C. Goddard
George R. Grantham
Ronald D. Hackney
James W. Hamilton, Jr.
H. C. Harden
Geoffrey K. Hart
Frederick O. Hawkes
Emil E. Herrero
William H. Harrington II
Bruce E. Hoffman
Frederick R. Holmes
Don A. Irons, Jr.
Paul L. Jacobs
Bruce H. Johnston
Colonel Douglas G. Lamb
Kraig A. Lenius
Walter O. Maine
Thomas J. Mihalcik
Daniel A. Nicholson
Charles Radonich
Raymond J. Sero
Harrison B. Smith
J. Keith Wicks

1970

Jacob B. Alagood
J. William Bartos
Larry R. Boyd
Richard E. Chesser
John E. Cunningham
Lester D. & Carolyn A. Curtless
Douglas H. Deese
Russell J. DeYoung
James D. Durham
Pierre J. Faucher
Gerald L. Gipson
Paul J. Gross, Jr.
Terry A. Hammond
Halfen L. Hoyt
Howard L. Kaiter
Robert A. Kellert
James L. Kotas
Arun M. Kumtha
Joseph M. Langford
Marc Lopatin
John B. Miller, Jr.
Albert W. Morneault
Robert A. Osborne
Richard Osen, Jr.
William Neil Phinney
Gary A. Pitt
Neils R. Poulsen
Dennis C. Prieve
Walter L. Robidoux
Thomas S. Shoemberger
Harold E. Simmons, Jr.
James W. Sloan
Jack W. Sparks
Robert W. Steward
Joseph S. Stonecipher
George H. Weller III
Nicholas Wenri, Jr.

1971

Alan H. Aront
Albert W. Blevins
Timothy P. Brodeur
Joseph S. Buck

David T. Buell
Joe Burns
Tom Corley
Richard B. Dalton
Kris A. Dane
Max F. Dannecker
John L. Dickens
Frances B. Dodson
Robert T. Dyer
Harry D. Farley, Jr.
Norbert J. Finkelstein
Vernon J. Franke
Robert O. Frink
Charles T. Frock
Hugh G. Griffin, Jr.
Sant D. Gupta
Carl D. Hamilton
Dennis L. Harrington
Robert H. Heidersbach, Jr.
Jerry W. Ingram
Robert C. Kemerait
Edward R. LaPierre
Thomas G. McRae, Jr.
Monroe A. Miller, Jr.
Doc X. Nghiem
Bruce F. Noel
John C. Norrell
John P. O'Brien
Harold R. Palmer
John E. Peer III
Barry D. Portnoy
Paul T. Reichert
Floyd G. Rippetoe III
Robert H. Saxton, Jr.
Kenneth R. Schultz
Stephen A. Shepard
Peter J. Stafford, Jr.
John L. Usher
Craig S. Wallace
Jerry M. Ward
Charles W. Williams, Jr.
Edward T. Wood
Richard P. Yeilding

1972

Hector Alonso
Arthur B. Anderson
Robert D. Beebe
Stanley Berger
Frederick S. Betz
Donald W. Calvin
Tsao-Yi Chiu
Lt. Col. William H. Conrad, Jr.
Kenneth R. Craig
Robert V. Croft
Lawrence J. Curles
Carlos M. Del Sol
George R. Dillon
Madelyn G. Freshwater
George L. Gafford
Charles W. & Elisa Q. Gregg
Jerome J. Guidry
Ted C. Hager
Steven G. Harvey
James G. Hayden
William S. Humphreys, Jr.
Richard J. Lane
Howard M. Langley
Frank D. Leonhartsberger
Steven M. Long
Joseph Paul McGuigan
Lawrence G. Merer
Henry C. Okraski
Julio C. Otazo
Bruce M. Parks

J. B. Phillips
John G. Pipes
Michael A. Ponder
William H. Rutledge, Jr.
Richard D. Santangelo
Herbert F. Schaaake
John H. Schmelzer
Walter N. Thomasson
James G. Thompson
John R. Twitchell
William S. Vilda, Jr.
Jeffrey S. Ward
Bruce M. Weinstein
Charles M. Wiecking, Jr.
Maxwell C. Yao

1973

Marc S. Adler
Jerry A. Ashwood
John O. Blanton, Jr.
Robert J. Cammack
Richard G. Connell, Jr.
Harry J. Darling
Prem J. Datt
Robert C. Dorsey
Donald A. Eckler
Jeffrey D. Einhouse
Carlos Espinosa
Gerardo B. Fernandez
David L. Freed
Martin M. Fritsch
Larry R. Gawlik
Fletcher W. Gibson III
Steven G. Godfrey, Sr.
Wayne R. Gray
Neal J. Gruber
Robert S. Hauge
James E. Laier
Roberta A. Lang
Peter S. Lenk
Michael S. Leonard
Charles B. Littlejohn
Anthony J. Lucas
James M. Lucas
Roger N. Madariaga
Edward L. Masters, Jr.
David L. Mays, Sr.
Peter L. Palmer
John F. Pitt
Gary G. Prato
John C. Roberge
Frederick Roth, Jr.
Robert W. Sams
George D. Seuss
Ronald M. Stein
E.W. Franklin Stirrup III
Seyfeddin I. Tanrikut
Thomas G. Tomasello
Chung-Chu Wan
Leon N. Williamson, Jr.

1974

Michael A. Aimone
Gary L. Allen
Stephen L. Brotherton
Robert W. Buhl
Salvatore Cangialosi
Joseph P. Castronovo
Ralph W. Coldewey
John G. Davis
John C. Dillingham
W. Frank Erwin
Lawrence T. Fitzgerald
Thomas M. Hearme, Jr.
Rustom F. Irani

Alumni

Harold V. Julian
Daniel L. Maloney
Arnaldo G. Martinez
Wayne Pandorf
Colonel William B. Poor
Ronald J. Rosenthal
John A. Ruf
Michael S. Rywant
Arthur J. Sepcie, Jr.
Wesley W. Shelton, Jr.
William E. Stevens
Richard E. Strickland
Steven J. Van Wagener
Richard W. Wark
James M. Wheeler, Jr.
Gary K. & Deborah C. Williams
George D. Woodward
Peter A. Zahn, Jr.
Terry D. Zipper

1975

Michael J. Bailey
Harrison H. Barker
Robert J. Behar
Walter R. Boynton
David G. Breskman
Lawrence H. Carson
Michael E. Collins
James R. Covell
Robert W. Crim II
William E. Dietz, Jr.
Wayne C. Fieler
Ronald E. Fuller
J. Michael Gilmer
Joseph R. Gosney
Joseph G. Hand
Edward H. Hodgens
Alexander B. Hull IV
Jamie W. Hurley, Jr.
Robert D. Lauffer
David A. & Christine M. Loucks
Henry A. Malec
David S. Marquis
Gary K. Matthew
Henry N. McKellar, Jr.
David A. McNamara
James A. Mills
Michael P. Murphy
Ray D. Odom
Wayne D. Parsons
Linda M. & Charles M. Perrygo
Larry R. Pitts
William F. Pope
Stephen E. Primo
Gordon S. Quesenberry, Jr.
Conrado O. Quintero
David A. Ramirez
Richard L. Reel, Jr.
Diego C. Rojas
Robert D. Rusinko
Pranab Saha
Dean C. Thomas
John R. Valusek
Manuel A. Vidal
Eldred V. Wilkinson
Woon C. Yeo

1976

Paul W. Arnold
William D. Bain
Gerald C. Cambias, Jr.
Miguel G. Correa
John R. Field, Jr.
Charles L. Geer
Lawrence A. Harlos

Jeffrey L. Hilbert
Marshall L. Hyatt
Michael S. Johnson
James A. Keener
Kenneth W. Killian
Robert H. LeGrow
Clifford D. Leitch
John R. Marquardt
Carlos J. Martinez
Richard W. McGinley
Michael B. McMahan
Waliid A. Natour
David R. Pokorney
Charles R. Revette
James R. Roche II
Ronald E. Rogers
W. Brick Rosenbaum III
William L. Schultz
Ronald L. Shelton
M. Matthews Smith II
Dr. & Mrs. Wade H. Smith
James S. Taylor
John E. Tutten
George T. Webb
James C. Wilt

1977

Lawrence E. Annen
Brian J. Barnes
Alonzo M. Burns, Jr.
Fred Parker Cone
Fred B. Cook
Richard V. Crlenjak
Franz A. Dill
William J. Dugary
Scott R. Evans
Ronald P. Ferland
Ricardo Fraxedas
David C. Greenspan
Charles R. Hach
Lawrence A. Heyl
Christopher D. Houha
William M. Kemp
Paul S. Klich
Dean M. Larsen
Robert L. Machowicz
Warren E. Maddox
Marc L. Malacoff
Dean G. McCormick
Mr. & Mrs. Thomas B. McDonald III
Deborah K. McKinley
Gary L. Messing
Lynn E. Mueller
Timothy E. Myrick
Kathleen A. Niesen
Thomas S. Perusits
Roger D. Polston
Woodrow W. Richardson
Ted H. Risher
David A. Schoen
Suresh K. Shenoy
Capt. John H. Stein, Jr.
Brian J. Swenty
John P. Thompson, Jr.
Terry B. Thompson
William C. Tinsley
John L. Vadnal
David H. Vickrey
Guy J. Wills
Samuel J. Winfrey

1978

Amarilis Acosta
Charles R. Albury
John F. & Marjorie J. Alexander

Kenneth R. Barnett
Benjamin P. Baum
Jaime M. Benavides
Sandra L. Brown
William F. Buholtz
Col. Christopher Caravello
William J. Conybear
Timothy H. Crawford
William R. Dillworth
James J. Diubac
Gerald E. Doddington
Edward M. Duran, Jr.
John M. Elliott
H. John Healey
Roger S. Hendricks
Gene E. Hosimer
William C. Huffman, Jr.
Edward P. Jacobsen
Gary W. Kuhl
Harry L. Light
Gregory L. Maag
James W. MacLaughlin
Kenneth R. Malin
Marlene H. McKetty
Jay J. Messer
Arthur R. Miller III
Col. Arthur E. Miscally, Jr.
Gary K. Mowery
Richard E. Oakley III
Donald R. Paul, Jr.
Mike Ponzio
Donald E. Reed
Mark D. Repasky
James E. Ringo
James M. Rodgers, Jr.
Arturo A. Rodriguez
Thierry M. Ross
Rodolfo M. Sanchez
Jigar V. Shah
Gregory O. Snowden
Geoffrey R. Spencer
Joseph C. H. Stagner
David W. Stewart
Stanley T. Stokes
Ann L. Strab
William Trump
Michael P. Whitesell
James R. Wooden
Adel M. Zantout

1979

J. Michael Adams
Shiv K. Balakrishnan
Michael O. Blaich
John E. Booth
Curtis D. Boswell, Jr.
Paul A. Bowdoin
Cheryl D. Breevoort
Robert J. Brugman
John G. Cantlin
Edward B. Clark III
Jerome L. Cleveland, Jr.
John A. Corven
Michael J. Cuzzo
Michael B. Daniell
Gary L. Donn
Pamela Callahan Durham
Virgilio A. Fernandez, Jr.
Marcus A. Gilbert
Robert J. Green
Lisa M. B. Guy
Dennis M. Hartley
Ewald A. Hartung, Jr.
Eric G. Heinrich
Richard L. Hester, Jr.

Richard E. Hinkley
Valerie W. Hudson
Dennis W. Johnson
Nicholas M. Klimas
Herman Lam
William H. Lamason II
Douglas A. Leas
Kevin D. Malik
Z. I. Martin
P. E. Menendez
Edward E. Moore, Jr.
Robert W. Mullennix
Timothy L. O'Brien
Paul Lee Olson
Neils R. Poulsen, Jr.
Comdr. James E. Power
Gerald A. Richardson
Jeffrey S. Schleher
Hope C. S. Stephenson
Russell H. Stokes
Burton L. Streicher
William B. Tallon
Michael T. Taylor
Dale M. Thomas
Louis R. Tortora, Jr.
William G. Vernetson
Rafael T. Villamil
Leonard D. Wert, Jr.
Roger L. Wofford
William D. Woodward, Jr.

1980

David W. Bartelt
E. Joseph Bauerlein III
Mark S. Brock
Col. Randolph O. Buck
James E. Connell
Mr. & Mrs. James E. Constable
George E. Cooper
Robert Carl Dahlgren
Jeffrey Randell Dean
Bradford W. Dearing
Cynthia M. Decker-Wright
Michael T. Donohue
Robert A. Ellis, Jr.
Edward J. Eng
Michael E. Frye
George G. Ganoe
Lawrence W. Hedges
Hunter W. Jones
Kevin S. Jones
James T. Jordan
Steven W. Kline
Bertha E. Lewis
Thomas J. Logan
Thomas W. Lyons
Michael J. McCarthy
Albert Muniz
M. Keith Neely
Kenneth R. Owens
T. Neil Peters
Gregory M. Powell
Joseph S. Robison
Frank J. Russo
Douglas E. Schepp
Mehdi Sheibani
Mark R. Shelton
Bruce Shockley
John M. & D. Denise West-Smith
Robert S. Thomas
Ronald C. Van Sickle
Elizabeth G. Waring
Mark W. Wheeler
Mark A. Williams
Michael D. Williams
Mark A. Wrightsman

1981

Randall A. Bailey
Christopher L. Blake
Harry Bloodsworth
Kirk E. Born
Alan W. Bradley
John G. Brady
David A. Brenner
Jerre W. Coleman, Jr.
James P. Coughlin
Ian A. Craw, P.E.
Albert J. Dancsak
James S. Daniel
Antonio A. Ferradaz, Jr.
Michael L. Funston
Christopher J. Garrett
Glenn L. Gilstrap
Jeffrey S. Haggard
Michael W. Harper
Marcia B. Hartman
Mark C. Haynes
William T. Heitman
John S. Hough
Gerald G. Isaac
Keith B. Jackson
Richard S. W. Jang
Michael L. Johnson
Scott T. Johnson
Nejat Kirmaci
Brian R. & Joyce A. Konigsburg
James V. Krohn
Anthony R. Leeman
John D. Lofgren
John D. Marsh, Jr.
Peter J. McGinniss
Michael T. McKelvy
Mark W. McNabb
Caryn Melrose
Susan de Paoli Molm
Catherine L. Morgan
Charles B. Quinn
Trudence B. Ramsay
Satish J. Ranade
Steven D. Rausch
Rufus E. Rose III
Timothy E. Roxey
Michael J. Sabochick
Rodney S. Smith
John J. Sutcliffe
Dennis L. Tackett
Donald M. Thompson
Patricia S. Towers
Angel Vanrell III
Agustin E. Veitia
Jack R. Waizenegger
Jeremiah J. Walker
Arthur W. Wiggins, Jr.

1982

Walter E. Anderson
Howard W. & Diane M. Bergendahl
Alireza Boghrat
George A. Borchik
Gregory A. Boshell
Kenneth J. Boydston
Robin E. Brady
Thomas A. Brice
Austin C. Brown
Jesse N. Cannon III
Bruce R. Carter
Raymond A. Cocco
John T. Fitzgerald
Robert A. Garren
Terri B. Giardina
Paul L. Gmerek

Farideh V. Gozleveli
Gary L. Guenther
Michael M. Hawkins
Randall A. Hensley
John T. Hockensmith
Robert M. Hurley
Densak Kajonpong
Lee P. Kennedy
David J. Kirks
Michael J. Koch
David A. Koscielniak
Jack L. Kouloheris
Robert P. Learnard, Jr.
John P. Leedy
Richard B. Lewis
Bill Lewis
Charlotte W. Lieberman
Whit Logan
John J. Mahoney III
Nancy M. & Patrick V. Malone
John H. McCoy
Vernon C. McGrew
Earl W. Metcalf III
Dennis J. Miller
Joseph W. Milton
Brian Monprode
William Z. Morgan
Mark E. Newell
Stephan J. Nix
Xavier L. Pellicer III
Robert A. Pincus
Keith P. Ponitz
Mark A. Powell
Pradeep D. Reddy
Scott A. Reynolds
Jennifer L. Rhatigan
Chris A. Rice & Wendy Wussow
Earl M. Ridgell
Scott A. Russell
Hinson L. Stephens, Jr.
Raymond R. Taylor
Robert M. Taylor
Mr. & Mrs. John A. Teegen
Kurtis D. Vanarsdall
Mark Warenko
Jeffrey D. Westbrook
Jacqueline M. White
Christopher R. Woodyard
John E. Wright
Thomas P. Young

1983

John T. Bell
Sheila C. & Dane R. Boyington
Humberto Carlo
Carol W. Carlson
Kathleen P. Cooke
Jean E. Davis
Paul A. de Paoli
Deborah P. Divine
Lt. Col. Edward K. Doskocz
Michael B. Duich
Carl A. Everatt
Ricardo L. Fabrice
Kelly L. Furlong
William P. Geers
Karen G. Gratton
James M. Greer, Jr.
Mark A. Halverstadt
Earl J. Hayter
David A. Hopkins
David L. Israel
David J. Jennings
Jacquelyn W. Jones
Arie Lagerwaard

Scott I. Langenthal
Kevin T. Langston
Roger K. Lawton
Kenneth L. Lee, Jr.
Robert W. Leggett, Jr.
David B. Martin
P. Ted McGowan
Michael H. McKinney
Timothy J. Miller
Knox T. Millsaps, Jr.
John W. Moliski
William V. Murray
David W. Nelsms
Bradley D. Noe
Timothy H. Osborne
Donald J. Polmann
Stephen L. Precourt
Edward A. Rikansrud
William F. Ryan
Mario J. Scarabino
Rossana A. Sexton
Jonathan S. Silver
Carl V. Strukely
Ravishankar Sundaresan
Kathleen D. Thomas
Timothy E. Thomas
Ronald C. Toifel, Jr.
Douglas C. Voorhees
Shang-Yih Robert Wang

1984

Scott H. Barton
George X. Boulton
Mark A. Burgess
Michael Z. Bush
Daniel E. Campbell II
Vickie P. Cavey
Thomas M. & Sandra R. Clark
Sandra M. Cleaves
Glen M. Colkitt
Mr. & Mrs. Frank A. Consoli
Steven R. Croyle
Christopher C. Downing
Eric M. Ethers
Alan J. Foster
Marina D. Freeman
Jeffrey R. Glassburn
Matthew M. Gordon
Richard J. Hankin
Robert E. Hansen
Gary S. Jacobsen
Scott S. Joffe
Kevin F. Kett
Robert T. Love
Sharon K. Manning
Hugh E. McCoy III
Bernard S. Morgan III
Deborah P. Noble
Gale K. Oates
Phillip E. Partin
Scott L. Porter
Cynthia L. Ragan
James T. Russell
Scott A. Saunders
Thomas J. Schanze
Phillip R. Scheuerman
John M. Segler
Ted A. Self
Azmat H. Siddiqi
Frank E. Skirlo
Jack E. Strieter
Frank M. Travassos
David A. Ulrich
Michael P. Williams, Jr.

1985

Daniel E. Baker
Jerald D. Baldwin, Jr.
Raymond M. Barnett
Brent A. Baumgartner
Bobby G. Beach
Barry I. Bockian
Donald G. Bolden
Andrew J. Bolton
Theodore E. Brown, Jr.
Robert J. Browning II
Martin A. Brungard
John W. Caldwell
Daryl R. Cook
John K. Cowart, Jr.
Kenneth Y. & Mrs. Camella
G. Curren
Charles W. Deaver
Dev N. Devadoss
Charles Goldberg
Laurie A. Gower
Jerald A. Hallmark
John H. Henderson
Michael G. Hole
Lloyd T. Hulme
Mr. & Mrs. Scott Ingerto
Robert A. Intrater
Dwayne R. Jackson
Carmen D. Johnson
Vincent Carroll Jones
Joel B. Junker
Christine M. Karas
R. Glen A. Knaust
Alan J. Krause
Scott P. LaPointe
Luis Lopez-Blazquez
Clay M. Lovell
Christopher D. Maholm
Richard J. Merriman
Michael A. Miller, Jr.
Malcolm G. Minchin
R. Clifford Mobley
Mindy L. Myers
Philip M. Newhall
Gilbert P. Nguyen
John A. Paramore
Jim Porterfield
Raymond O. Reid
Michael D. Rowand
Thomas J. Saam
T. Richard Thompson
Dennis E. Walter
Gregory T. Williams
James J. Wilson
Ronald J. Wilson, Jr.
J. Mark Ziel

1986

Annette L. Baird
John R. Bils
Stephen C. Binard
Brian C. Braziel
James B. Cornette
Dale E. Cronwell
Chris Desoiza
Gary M. Dockter
Laura J. Ensley-Stanton
Susan H. Gaines
Andre M. Gallet
Jimmie Lee Hamilton
Douglas W. Hantula
C. David Henley, Jr.
Deborah J. Hill
Paul D. Johnson
Steve Johnson

Fred R. Jones, Jr.
Thomas S. Knuckey
Blake D. Kresl
Douglas B. Lang
Brett W. Lassa
Christopher W. LeDew
Burtrand I. Lee
James T. LeGrone, Jr.
Paul F. Linton
Jonathan W. Lott
John M. Lushetsky
Sanjoy Malik
Shawn K. Martin
Laureen A. McClure
Murray C. McDonough
Robert S. McKinney
Kathy Novak-Johnson
Brent M. Peyton
Daniel S. Powers
Rafael A. Rodriguez
Lesa B. Roe
Joseph H. Schaefer
Vay L. Scott
Norman E. Shain
Keith E. Sibley
Bruce Sieck
John D. Spahn
Diane L. Stewart
Douglas A. Warren
Kenneth J. White
Michael L. Whitehead
Kenneth A. Wolking
Tess Zbuchalski

1987

Jeffrey G. Alber
Andres F. Alberdi
John P. Albright
Stephen P. Ambrose
Douglas A. Asbury
Robert H. Bacchus, Jr.
George H. Baldwin III
Marie A. Boyette
Colonel John G. Campbell
Keith B. Campbell
William O. Charland
John E. Cocanower
Harold H. Collins, Jr.
Maj. Joel W. Cornell
Melissa A. Costello
Carl D. Crane III
Kevin P. Culligan
Carla M. Curtis
Terrence Diaz
Steven E. Doyle
Brian J. DuChene
Douglas L. Dycus, Jr.
John J. Ferrell
Clark W. Furlong
Patrick Harshman
Daniel A. Haycook
John F. Hayford III
Todd B. Hines
Robert H. Hoffman
John G. Hutton
Paul E. Ina
David R. Jones
Robert J. Kanaskie
Dale E. Kostamo
Robert P. Lauderdale II
Tien-Feng T. Ling
Rafael E. Lorenzo-Luaces, Jr.
Philip H. Love
David V. Madonia
Daniel J. Mashburn

Michael A. Moore
Julia E. Nemeth
Matthew J. Ossi
Laurie L. Ottinger
Michael S. Palgon
Linda M. Parlatore
Amy B. Reiss
William C. Rowe
Robert Ray Saltsman
Norman W. Scheffner
Michael S. Smith
George B. Sykes
Yvette A. Tramont
Zane J. Ullman
Debra B. & David R. Wiley
Richard C. Wohlfarth

1988

Kevin T. Abell
Steven M. Anderson
Gabriel Araos
Dargar W. Bjorksten
Daniel W. Bowholtz
Jerry A. Byers
Richard M. Cratem
Michael J. Dion
Dale L. Dowden, Jr.
Catherine M. Duke
Yoriko T. Funke
Ray Garcia
Tania M. Hake & Charles
W. Vanecek
Bruce A. Holms
Mark H. Inman
Lt. Sean L. Jersey
James Koppenberger
Patricia Kuta
Joseph W. & Mary M. Lawrence
Kong C. Lim
Nadia G. Locke
Richard D. Mahaley
Charles W. Manzione, Jr.
Stephen P. Nootens
Joseph T. Palaganas
Fernando Perez & Maria
E. Cardenas
Eric A. Rall
Orlando A. Rubio
Betty T. Rushton
Kirk A. Russell
Jeffrey T. Schnars
Charles R. Schramm, Jr.
Charles E. Shermwell
James S. Sirkis
Marc R. Solnet
Gerald B. Stanley
Lee Strickland
Mark L. Swinson
William L. Verboncoeur
Mark T. Weinberg
Christopher W. Weldon
Co-Co Wu
Blair P. Wunderly

1989

Andrew Z. Adkins III
John A. Bowlus
Sudhir Vasant & Elisia NeSmith
Chapnerkar
Michael D. Condon
William M. Corson
Christine A. Davis
Capt. David B. Gerlach
Ronald J. Green
Gary W. Gunther

Dennis L. Havlin, Jr.
David J. Isaacs
Junhaur Jih
Major D. Jones, Jr.
Sharon T. Joyce
Chin-Hung Jwo
John S. Kempton
Harbans Lal
Marc E. Levenston
Marie W. Mahan
Colin D. Miles
Ronald B. Morahan, Jr.
Kevin C. Neelands
Fred T. Ogden
Mathew M. Panicker
Thomas A. Pool
Eduardo A. Prieto
Carmine A. Priore III
Richard A. Rayos
David R. Reed
Mark L. Stephens
Adam K. Switzer
Timothy H. Vath
Kenneth C. Whedbee, Jr.
Joseph A. Zimny

1990

Judy Awong-Taylor
James B. Badgerow
Dean W. Brenner
Deryle I. Calhoun, Jr.
Robert C. Campbell
Stephen R. Carsello
David J. Cheney
Julia A. Cunningham
Lawrence E. Davis
Thomas M. Dugger
Jeff J. Elsner
Janie G. & Jeffrey L. Hagberg
William E. Harter
Albert L. Holloway
Kristianto Iskandar
Steven A. Keyes
Mark C. Kilby
Michael O. Kingham
William S. Kirchhoff
Jeffrey W. LaCroix
James G. Lance, Jr.
Jeffrey R. Lance
Jon C. & Katherine M. Leverette
Frank C. Lin
Mark A. Lowery
Thomas J. McCormas
Michael G. McCorkle
Kirby E. McCrary
Cynthia S. McKee
Damon M. Meiers
David J. Mendez
Timothy R. Newell
Paula G. Oakes
Ananth K. Prasad
Ann M. Quillian
Leslie C. Roberts
Roger A. Ross
Leslie A. Roziac
Luis J. Ruiz
Brian M. Rustia
Todd A. Shrader
Mark E. Springgate
Steven J. Thomson
Jeffrey P. Vaughn
James W. Vearil
David S. Wantman

1991

John G. Austin III
Juan C. Barinaga
Craig H. Barker
Mark L. Baumgartner
Michael H. & Marcy K. Biller
Isin G. & Temel H. Buyuklimanli
Dawn M. Courtley
Scott W. Dalton
Scott P. D'Antoni
Thomas E. Davis
Michael A. Gedwill
Noyes F. Hart, Jr.
Maj. Dean H. Hartman
David W. Hostetter
J. Paul Hubner
Pamela A. Kistner
Virgil C. Lewis
Timothy D. Macaluso
Paul A. Manuel
Michael B. McFarland
John K. & Mary L. McKinney
Marni B. Mirowitz
Mark H. Mitchell
Maj. Christopher C. Morton
Denese Murrin
George A. Olsen
David J. Oriente
Harsha K. Pelimuhandiram
Clifton F. Reynolds
Jon W. Roberts, Jr.
Christopher H. Rountree
Daniel R. Rua
Christopher A. Schreel
Christopher M. Stillo
Claude D. Tankersley
Robert L. Wells
Robert E. Williams

1992

Joseph D. Acker III
Joann L. Archer
Salvatore Aurigemma
Gregory C. Bessette
James N. Brouillette
Caryl B. Brown
Rui P. Cerejo
Kefeng Chen
Lance C. Davies
Laura C. DiGruttolo
R. Chris Fore
Reginald F. Glick
Caroline R. Holland
John M. Hornick
Paul J. Karch
David G. Keefer
Scott J. Kenner
Theodore R. Kilpatrick
Frederick C. Loper
Rodger D. Lower, Jr.
Noel R. Mateo
Jay A. Maupin
Alfoncio Michel
David M. Milburn
Jeyakumar R. Muthuraj
Brian K. Nelms
Daniel A. Nieten
Susanne C. Openshaw
Matthew R. Overholt
Steven D. Peery
Eric L. Poole
Archana V. Ray
Joan M. Rice
David N. Rocheleau
Brian J. Rooney

Roger W. Rossitto
Thomas R. Steger, Jr.
Xin Wang
Bobby A. Warren

1993

Jeffrey E. Banks
Anindya Basu
Michelle E. Beauchemin
Michael P. Brady
Steven M. Burke
Keith L. Butts
Michael J. Calvo
Gregg D. Costabile
Robert E. De Pierre
Michael Joseph Delate
Dino S. DeLeo
Deborah B. DiFrancesco
Lennox I. Foster, Jr.
Eric C. Gallo
Paul J. Guariglia
Naeem U. Haq
John H. Hoertz III
Mark A. Hoffman
Yongkee Hwang
Janet S. King
Kha V. Le
Ernesto G. Leon
Shaofan Li
Walter F. Loomis
David P. McKienzie
Joseph P. Mecca
Khalid Mentak
Edmund H. Moore
Russell J. Poole III
Captain Sean P. Rucker
Paul R. Salazar
Susan M. Sansalone
Eric M. Shaw
Mark C. Smiley
Lenard A. Smith
Phillip L. Stutzman
Richard S. Traverse
Asa R. Williams
James M. Williams
Daniel M. Wright
Ling-Zhong Zeng
Fugang Zhou

1994

Teresa L. Andre
Jorge J. Beltran, Jr.
Dana R. Branscum
J. Alexander Cabanilla
Robert L. Cannaday
Shawn D. Chesney
Thomas H. Copps
Stephen D. Croll
Comdr. James J. Cummings
Holly C. Dalton
William W. Dyess, Jr.
Kimberlee M. Freudenberg
Frederic F. Gaines III
Rodney E. Gamble
Luana E. Gibbons
Kurt R. Gies
Nickey E. Gillette
Gregor Gramlich II
Tamala L. Gullely
Steven M. Hadfield
Richard H. Hamilton
Amy C. & Michael I. Hessel, Jr.
Kristin C. Hoffman
Eric E. Jensen

Azhar A. Khan
David A. Klein
Renee M. Knez
Carlos M. Kunigk
Wayne S. Lee
Joseph K. Lek
Charlotte A. Maddox
Michael F. March
S. Joseph Mather
Mark M. Montoya
Kenneth E. Paquette
John M. Restrepo
Ramon I. Serrano
Joyce T. Siegele
Jennifer A. Takeshita
Gina M. Tillis
Mrs. Carrin B. Tunney
Dale E. Walter
Jeffrey J. Wang
Timothy S. Wattleworth
Michael A. West
Paul A. Wise
Tommy Yip
Lev Zilberman

1995

Peter S. Ahmed
Sreeram Akunuri
Besjon J. Alivandi
Scott H. Andersen
Jennifer S. Arms
Darren Bensley
Jeffrey A. Berringer
Gerard P. Biagi
Steven M. Botwinik
Michael J. Bouchard
Allan J. Caban
Liang-Ming Chen & An-Nie Guu
Van R. Culver
Kimberly A. Gregory
Robert T. Healy, Jr.
Gregory R. Howell
Michael G. Jones
Mubeen A. Khan
Michael R. Krecic
Kevin J. Kwitkowski
Thad E. Larson
Carlos Liendo
Army J. Mijon
Michael W. Morris, Jr.
J. Jeffery Nauful
Albert F. Schultz
Melanie A. Soto
Vanessa K. Stelly
Gregory E. Thoman
Deavon C. Uter
James J. Wallace
Derek L. Yachanin
Chi-Lin Young

1996

Christian J. Alexander
Scott W. Bailey
Magda I. Berlinger
Christopher J. & Julianne M. Birdsall
Andrew J. Boeckl
George A. Brown
Chad A. Bruender
Ali N. Burumcekci
Clay F. Carlson
Ian J. Davidson
Gerardo J. Delgado
Micheal L. DiPaolo

Kevin G. Ferguson
Sean M. Froelich
Christa L. Gandenberger
John M. Garland
Julio C. Goya
Guobao Guo
Ann R. Guthrie
Kenneth A. Head
David E. Heumann
Corey D. Hines
Christopher M. Izzo
Kevin E. Krut
Sunil K. Kunisetty
Captain Joshua A. Lane
Cinnamon B. Larson
Gretchen H. Letvin
Jian Liu
Egbert N. Maben
Sean E. Manson
Beth A. Melendez
Thomas E. Murphy
David R. Nute
Wendy T. Osucha
Hong Ouyang
Fan Qian
Matt Reilly
Shaji Samuel
Christopher J. Santana
Gregg M. Schoppman
Mark A. Sochacki
Jason W. & Sheila W. Stettler
Daniel P. Stetzer
John M. Theobald
Joseph A. Thompson
Randall W. Watts
Susan A. Welsh
Brian D. Wichman
Shoulian Zhu

1997

Jesse J. Arnold
Nikole B. & Patrick L. Bethea
Mark W. Bower
Guillermo Cevallos
Christopher L. Davidson
Julio C. Delgado
Stephen W. Dickson
Jian Fan
Paul C. Flury
Valarie L. Hoffman
Daniel P. Huskey
LTJG Michael A. James
Craig M. Kerchner
James F. Kirk
James B. LeBleu, Jr.
Hui Liao
Christian A. Lopez
Melissa M. Lovell
Robert B. Mann
James S. Marotta
David J. Meriwether
David L. Mickler
Shawn K. O'Brien
Pedro R. Quiros-Pierce
Melinda F. Robinette
Ernesto C. Roedenbeck
Jose A. Sanclement
Sergio Schuler
Karsten A. Sedmera
Lt. Col. George T. Shepard, Jr.
Chuanxue Wang
Lester A. Welch III
David B. Wilkers
Michael P. Zamora

1998

Bradley R. Atherton
Fanny N. Atwood
Ryan K. Baderschneider
Russel J. Brockman
Pamela A. Burke
Fengting Chen
Yu-Ming Chiang
Robert B. Conerly
Kreg R. Everleth
Keith B. Fosen
Brian L. Fuller
Carlos R. Gamero
Philip H. Gliedman, Jr.
George F. Harder
James H. Hoffmann
William H. Keener III
Andrew K. Kilpatrick
Jeong Tae Kim
William E. Lawton
Roger A. D. Le
Kenneth R. Lockwood
Salvador Magana, Jr.
Michael Mahon
Matthew J. Orme
Michael C. Pappas
Luis A. Pardo
Chad A. Rohde
Marina Santarpia
Jon Sinnreich
David A. Skowronski
Jason G. Sloan
Shiby Thomas
Luis G. Velazquez Villares
Victoria Cannon Webb
Ronald J. Zink II

1999

Richard J. Allain
Dhyan Appachu
Salvador G. Arnaldo
Anthony M. Bevilacqua
Maj. Robert G. Bozic
Jeffrey R. Brigman
Gregory A. Call
Timothy J. Campbell
James G. Curlee
Benjamin R. Dawson
James L. Edens
Marc C. Fontana
Kee Bum Jung
David H. Kaczowka
Sean M. Kelley
Michael A. Kerlan
William G. King II
Charlene M. Leary
Hongbin Li
Shao-Jen Lim
Robert L. Lybarger, Jr.
John D. Matthew
Jay A. Murphy
Raleigh D. Myers
Gwen E. Pace
Mauricio P. Pincetic
Barry M. Prince
Felix G. Rivero, Jr.
David R. Tilley
Joseph M. Vekasi
Vincent Vigna
Ted O. Welch
Andrew C. West
Robert P. Wood

2000

Brian J. Basterrechea
Glen R. Behrend
Alejandro A. Bellon
Richard D. Bruns II
Edward E. Bryan III
Hitakshi K. Buch
Ping P. DeLucia
Andre L. Desilet
Richard I. El-Kadi
Keith R. Giffels
Damian M. Gonzalez
Jeffrey A. Hirsch
Philippe A. Jolicoeur
Rhone N. Kelly
Laura Line
Raphael J. Lyman
Thomas G. Morgan
Matthew P. Phillips
Benjamin D. Pohl
Robert B. Simpson
Heather M. Spencer
Andrea L. Williams
Mark A. Wortham
Wu Ye
Kun Zhang

2001

Anick G. Ambrose
David P. & Jennifer L. Arnold
Alexander F. Ashkar
Kevin P. Courtney
Tony Crease
Ward L. Dougherty
Herman A. Glenn IV
Paul V. Mazzeo
Christopher P. McLaughlin
Marcos Y. Montes De Oca
Matthew P. Sapp
Christian J. Sloan
Bradford J. Youngers
Jorge L. & Jennifer E. Zapata

2002

Igbetsape A. Abu
Theodore R. Howell
Shriram Lakshmi
Matthew D. Markel
Rodrigo J. Pastrana
Gregory L. Porter
Kimberly A. Schlitt

2003

Wen-Ben Luo
Rui Yan

Friends We Will Miss

- 1924** John W. Mellor, BSME, of Logona Hills, California, died December 1, 1974.
- 1934** Kaleel S. Rizk, BSEE, of Rockville, Maryland, died February 15, 2004.
- 1935** Sterling A. Fielding, BSME, ME 53, of Baltimore, Maryland, died January 13, 2004.
- 1939** Alfred J. Ormston III, BSME, of St. Petersburg, Florida, died February 15, 2004.
- 1943** John G. Simmons, Sr., BCHE, of Loxahatchee, Florida, died January 27, 2004.
- 1948** A. Ray Miller, Jr., BSCE, of Winter Park, Florida, died November 14, 2003.
Wilfred O. Roehrig, BME, of Rochester, New York, died August 21, 2003.
- 1950** John M. Sims, Jr., MSCE, of Pensacola, Florida, died November 29, 2002.
Stanley W. Smith, BSEE, of Atlanta, Georgia, died December 13, 2003.
- 1951** Jack L. Holloway, BSIE, of Panama City, Florida, died December 15, 1987.
- 1952** Allen R. Dickhaus, BSIE, BSEE, of Miami, Florida, died January 29, 2004.
William A. Snell, BSCE, MSE 54, of Sarasota, Florida, died February 10, 2004.
- 1954** Maloy E. Kirkland, BEE, of Gainesville, Florida, died January 6, 2004.
- 1955** William M. Lambert, BSEE, Longwood, Florida, died October 17, 2000.
Mark H. Smallwood, BEE, MSE 63, PhD 69, of Grottoes, Virginia, died June 30, 2000.
- 1956** Saadallah Habbaba, BSCHE, of Gainesville, Florida, died February 25, 2004.
- 1957** Arthur A. West, BSEE, of Jamesville, New York, died December 6, 2003.
- 1958** Ronnie C. Davis, BCE, of Newberry, Florida, died February 8, 2004.
- 1961** Donald T. MacClellan, BCHE, of Pomona Park, Florida, died August 6, 2002.
- 1965** Walker W. Reinschmidt, BSCE, of Cantonment, Florida, died December 3, 2003.
C. Jeffrey Willis, ME, of Huntsville, Alabama, died January 30, 2004.
- 1970** Michael P. Bouchard, BSEE, of Lawrenceville, Georgia, died November 23, 2003.
- 1972** Russell K. Juhl, Jr., BSNE, of Milton, Florida, died November 15, 2003.
Thomas A. McDonald, MS, PhD NES 76, of Woodridge, Illinois, died June 4, 2002.
- 1979** Andrew J. French, BSME, of Aurora, Colorado, died December 31, 2002.
- 1993** Joseph A. Bach, BSEE, MSEE 96, of Jackson, Mississippi, died April 13, 2001.
- 1996** Catherine S. Nicholas, BSEE, of Woodburn, Oregon, died April 13, 2002.
- 2002** John S. Walker, BSEE, of Milton, Florida, died January 1, 2003.

send pubsmail@eng.ufl.edu

Editor, The Florida Engineer
University of Florida
PO Box 116550
Gainesville, FL 32611-6550

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Alumni Updates

1931

John L. Sanders, BSEE, retired from Florida Power & Light in Fort Myers in 1974. He recently celebrated his 95th birthday, and spends time in both Fort Myers and Frankfort, KY.

1934

Arnold M. Rader, BSChE, has been retired for many years. Rader, who once took a summer school French class at UF to be able, as he says, to get a job in food service, had a long career with the Minneapolis (Minn.) Gas Company. He began as the assistant plant superintendent and was vice president when he retired. He resides in Minneapolis.



Carroll Shelby and Chris Gremley '93

1940

Curtis Henderson Stanton, BME, 1979 University of Florida Distinguished Alumnus, is the retired CEO of the Orlando Utilities Commission, where he worked from 1947 to 1983. Stanton was a member of Florida Blue Key, Phi Kappa Phi, and Tau Beta Pi before his graduation from UF with high honors. He was president of the American Water Works Association in 1978-79, which honored him with its Distinguished Public Service Award and election to the Water Industry Hall of Fame. He is a past chair of the Orlando Regional Chamber of Commerce and received the John Young Award. He is a past president of the Central Florida Fair and the Florida Electric Power Coordinating Group, and is a member of the Central Florida Business Hall of Fame. He resides in Orlando.



Curtis Henderson Stanton '40



Yvette Kirrin (Chapanar) '92

Golden Rule award in 1999 and Rotary of Syracuse award in summer 2003. He also did taxes for the IRS/AARP/TCE program for 11 years. As Peggy says, "He had a real reason to get up every morning and he WAS useful until the very last moment."

1963

Curtis C. Whitney, BEE, retired in 2000 from BellSouth Cellular in Atlanta, where he was director of operations. After graduation, Whitney first worked at Bell Laboratories and received his MSEE from New York University in 1965. In 1970, he left it all to live with his wife and two children on his sailboat and manage a sailboat charter business in St. Thomas, US Virgin Islands. He returned to Florida and worked for Southern Bell, then moved to Atlanta in 1983 to start BellSouth Mobility as General Manager-Network Design. He then was vice president for engineering and operations at Houston Cellular, before returning to Atlanta at BellSouth Cellular. He has just completed his dream log house in the North Carolina mountains alongside Caney Fork Creek, near Cullowhee. He follows Gator athletics regularly on TV and the internet. Hobbies include SCUBA diving, snow skiing, and work around the house... and of course Web surfing.

Whitney's three brothers also received BEE degrees from UF. **Donald L. Whitney**, '65, died of cancer April, 1997. **Charles F. Whitney**, '61, is retired and lives west of High Springs, FL. **Richard O. Whitney**, '64, just retired from Hewlett-Packard and lives in Houston, TX.

1948

A. Ray Miller, Jr., BSCE, died November 14, 2003. He was a Navy veteran of both World War II and the Korean War. He worked with the Hubbard Construction Company from 1955 until 1986, serving as president and CEO from 1980-65 and vice-chairman of the board in 1986. Following retirement, he worked with his son's firm, A.R. Miller Engineering, Inc. Among many activities, he served as president and state director of the East Central Branch of the American Society of Civil Engineers in 1970 and as state president and national director of the Florida Engineering Society in 1977-78. He received the National Professional Development Award for Engineers in Construction from the National Society of Professional Engineers in 1985.

1957

Arthur A. West, BSEE, died December 6, 2003. His wife, Peggy, reports that West had worked for GE after graduation from UF until retirement in 1990, primarily as a program manager with their Heavy Military Department. West had an MBA from Syracuse University. After retirement, West was the full-time volunteer business manager for the Syracuse Symphony Orchestra. He served on many not-for-profit boards in the Syracuse area and received numerous community service awards during his retirement years, including the JC Penny



Ian Johns '98

Donald H. Esry, BCE, retired on March 31 from the Florida Department of Corrections after 13 years as a professional engineering administrator, and a total of 29 years with the state of Florida. He resides in Tallahassee.

1971

Steve S. Spector, MSNES, MD 1975, is an ophthalmologist and eye surgeon at the Presidential Eye Center in West Palm Beach, Fla. Spector has been active doing volunteer eye surgery for the indigent blind in Namibia, Vietnam, and Jordan. His volunteer work is coordinated through Surgical Eye Expeditions, a nonprofit, humanitarian organization that recruits eye doctors, nurses and technicians to perform free, sight-saving surgery around the world. Spector is also a member of Partnership 2000, which provides non-Israeli medical personnel to fill in for Israeli doctors who are serving in the military. Back at home, he is a board member of the Jewish Arts Foundation in Palm Beach.

1975

Bill Mitsch, MS, PhD EES, received the prestigious 2004 Stockholm Water Prize for his pioneering development and global dissemination of ecological models of lakes and wetlands, widely applied as effective tools in sustainable water resource management. He is a professor at Ohio State University.

1992

Yvette Kirrin (Chapanar), BSME, is an associate vice president with AZTEC Engineering in California. Earlier, after seven years with the Florida DOT, she joined Parsons Corporation as deputy project manager of a multimillion-dollar effort to bring maglev (magnetically levitated) high-speed rail to Southern California. She is continuing with the maglev project at AZTEC.

1993

Chris Gremley, BSME, is employed by the Ford Motor Company in Dearborn, Michigan. He attended the 2004 North American Auto Show Black Tie Charity Preview Event, a fundraiser for 11 Detroit-area children's charities. "It was very amazing to see so many people in black tuxedos in one place. It almost reminds me of the 'Mr. Smith's' from the film The Matrix. It was a very glamorous event with lots of limos, champagne and everyone in the best attire," he says. The Ford Motor Company released the new 2005 Shelby Cobra Mustang Concept at the show, with car designer Carroll Shelby in attendance. Chris had his picture taken with Shelby, who he reports to be quite personable.

1998

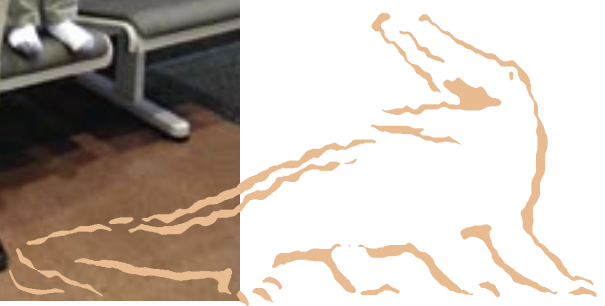
Ian Johns, BSCEN, has relocated to Caribou, Maine. To keep a little bit of Florida with them, Ian and his wife have replicated Florida Field in his home office. He has shared a photo showing the work in progress. The scene was finished this spring and is ready to go for the next football season.

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Charles R. Benton, 86, son of John R. Benton, the first University of Florida Dean of Engineering, visited the UF campus April 1 for the first time in more than 30 years. He stopped by to see the portrait of his father. Benton was accompanied by his grandnephews Caleb Benton, 4, (left) and Joshua Benton, 7, of Gainesville. Benton, a retired medical doctor, has lived in Pensacola for 50 years.

Portraits of all seven former engineering deans are on display on the first floor of the New Engineering Building.



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Send to:
 Editor, The Florida Engineer
 P.O. Box 116550
 Gainesville, FL 32611-6550
 fax: 352.392.7063
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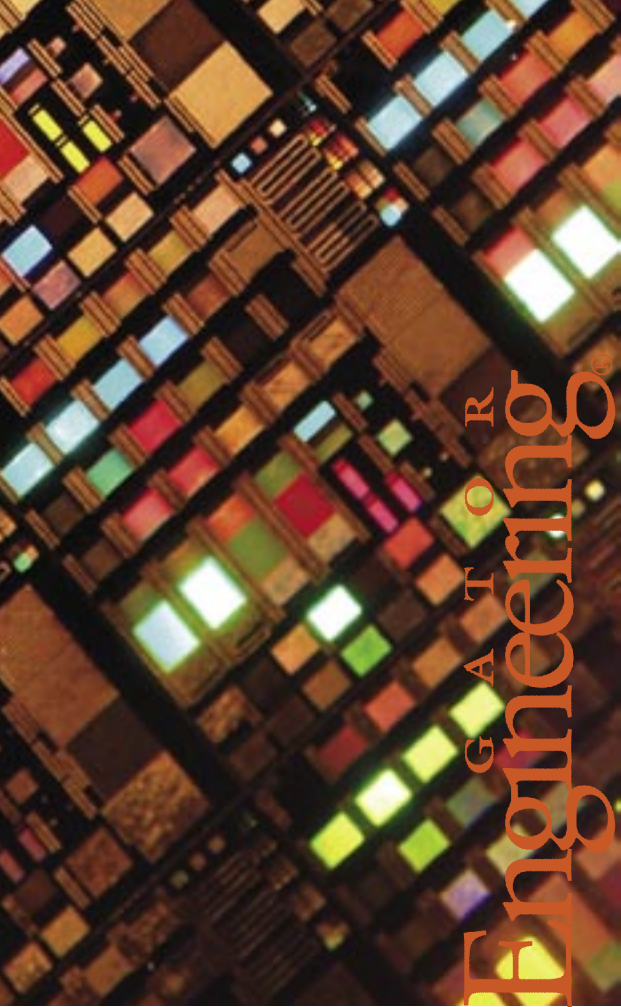
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Upcoming Events

August 5, 2004

College of Engineering Dean's Reception at the Florida Engineering Society Annual Meeting

The College of Engineering Dean's Reception will be held at the Ritz-Carlton Palm Beach on Thursday, August 5, 2004, from 5:30-6:30 p.m. For additional information please contact Marianna McElroy at (352) 392-6795.

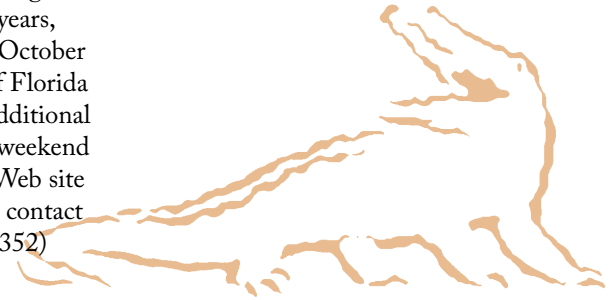
September 30 - October 2, 2004

Grand Guard Reunion, honoring the Class of 1954 and all prior years, will be held September 30-October 2, 2004 by the University of Florida Alumni Association. For additional information on this festive weekend of events, please visit their Web site at www.ufalumni.ufl.edu or contact the special events office at (352) 846-3580.

November 13, 2004

Homecoming Alumni Barbecue

This year the University of Florida Alumni Association and Florida Blue Key will hold a university-wide barbecue preceding the University of Florida versus the University of South Carolina football game on November 13, 2004. Engineering alumni, family, and friends will enjoy free barbecue tickets sponsored by the Harris Corporation, Melbourne, Fla. For additional information, please email RJ Stamper at: rstamper@uff.ufl.edu or call (352) 846-3579.



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College of Engineering
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