

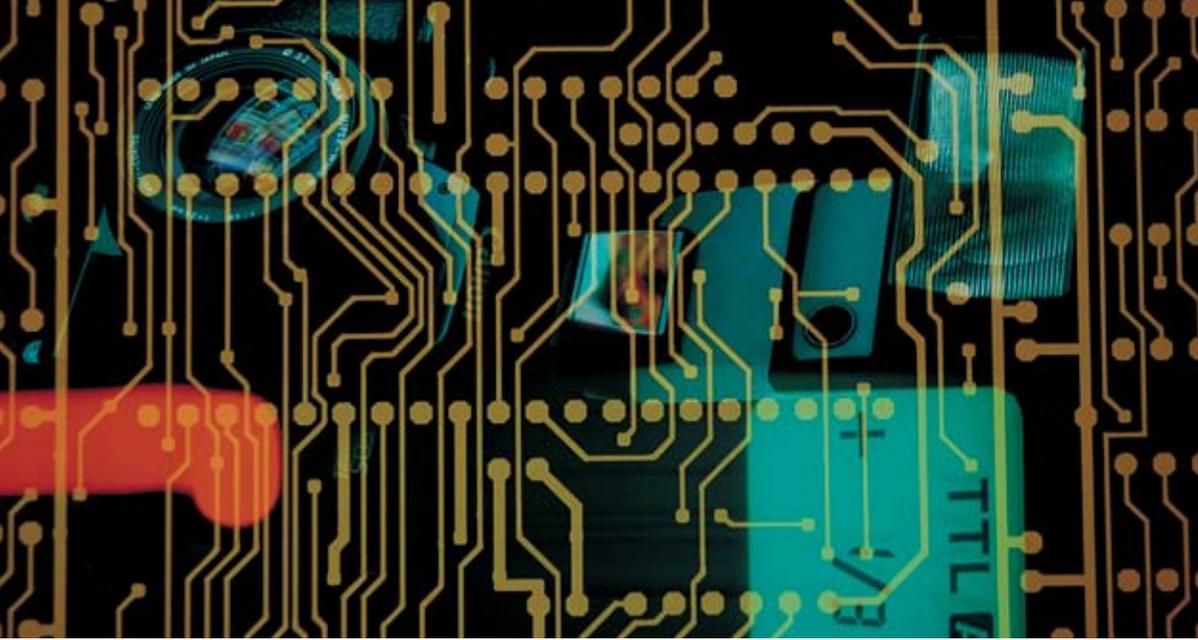
UNIVERSITY OF CENTRAL FLORIDA

# UCF Research & Commercialization

## Fiscal Year 2009 Annual Report

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## Old Adages Prove True In Challenging Times

### DEAR FRIENDS:



Throughout its short history, the University of Central Florida has defied many expectations, especially in the area of research and commercialization. By any measure, our research enterprise has grown at remarkable rates and has become competitive with the best of America's universities.

Only 10 years ago, UCF celebrated a record-breaking level of external funding when our researchers earned \$37.5 million. One brief decade later, the total has increased to \$121.7 million. Despite one of the most challenging recessions our nation has ever endured, along with an extremely competitive contract and grant environment, our researchers continue to earn awards at rates that confirm their professional expertise. And their success enhances UCF's reputation among institutions and grant agencies.

UCF's entrepreneurs and innovators drive economic development, and each of their ventures has been shown to create an average of \$10 million in economic value and generate 83 high-paying jobs in Central Florida. Research and commercialization efforts inject money into our regional economy, attract top-quality graduate students and post-doctoral fellows, and provide scarce resources for materials, cutting-edge equipment, and state-of-the-art laboratories. Researchers support graduate education, and their work leads to innovations that transfer to new and existing high-technology companies.

This year, UCF received two independent, national rankings that placed the university in the top 10 for patent strength, proof that the nation's groundbreaking and patentable research is conducted right here at UCF. Our peers in these top 10 lists include such prestigious universities as California Institute of Technology, Georgia Institute of Technology, Harvard University, Massachusetts Institute of Technology, Rice University, Stanford University, University of California, University of Texas, and University of Wisconsin.

But the success of UCF research and commercialization doesn't stop at grants, contracts and patents. We began the UCF Business Incubator Program 10 years ago, and it has expanded to six locations throughout Central Florida. Cumulatively, more than 70 companies that began in the Incubator Program have created 1,600 jobs, attracted approximately \$170 million in investment funds, and generated annual business activity in excess of \$200 million.

Clearly, UCF Stands for Opportunity in research and commercialization.

Thank you for your contribution to our success and for your continued interest in UCF.

Cordially yours,

John C. Hitt  
President

There's an old saying about the company that you keep. And there is another one about times of adversity. In the past year, UCF researchers have epitomized both of those adages.

UCF researchers have risen to the challenge posed by massive cuts to the university budget and the toughest competition for grant funding in memory.

Securing \$121.7 million in funded projects in Fiscal Year 2009 is impressive in and of itself. Doing it at a time of ever-shrinking budgets is a true feat. Funding is one indicator of quality, another is peer validation. In two independent surveys of patent strength last year, UCF ranked among the top in the nation.

The faculty has met the challenge and has worked to keep us in the best of company.

Achievement in the face of adversity and being placed in the company of the world's greatest universities are good reasons to be proud and optimistic for the future of our university.

Sincerely,

M.J. Soileau  
Vice President for  
Research & Commercialization

# Years After Inventors Die, Royalties Are Pennies From Heaven

The Chronicle of Higher Education *focused on the lucrative work of a deceased University of Central Florida faculty member in this July, 2009 cover story*  
By GOLDIE BLUMENSTYK

Inventors can be an ungrateful bunch.

At Stanford University, Nancy R. Fuller tracks down former professors and graduate students to send them royalty checks for products they created there, but the responses are often terse: Thanks for finding me. Here's my e-mail.

The letter she got two years ago from the mother of a former genetics postdoc — an heir whom Ms. Fuller had spent more than a year trying to find — was pleasantly different.

"I'm writing to you to thank you for one of the happiest surprises I have had in a long time," the inventor's mother wrote. "Your efforts to locate me resulted in a brand new reason to be so very proud of my son."

Her son, who had died five years earlier, had always had "an inquisitive mind," his mother wrote. But until hearing from Ms. Fuller, she hadn't known that while working at Stanford in the mid-1990s, her son had helped invent a technique that is now used by countless scientists working in drug discovery and other fields.

And she certainly never expected a five-figure payment from Stanford — her son's share of back royalties from the university's agreement with a research-tools company that licensed his cell-screening invention four years before her son's death.

Sarah L. Kieweg had her own nice surprise when the University of Central Florida contacted her. She understood quite a bit about her father's pioneering work on artificial intelligence in the 1990s. Still, in 2006, eight years after he died of a heart attack, at age 50, the call from the university came out of the blue: Some of James R. Driscoll's patents had, at long last, been licensed, and a royalty check was coming her way.

By then a young faculty member herself at the University of Kansas, she cried on the phone, recalls John Miner, the Central Florida licensing officer who gave her the news.

It's the nature of the academic technology-transfer business that many of the inventions born in university researchers' laboratories can take years to become products. By design, the work is more fundamental than applied.

As frustrating as that pace can be to college finance officers and venture-capital investors, it isn't the only consequence. The commercial success of an academic invention that comes years after its inventor's death can mean a lucrative, if bittersweet, legacy for the heirs. It can also present a logistical and sometimes

emotional challenge for the college employees responsible for finding them.

Ms. Fuller, an accounting assistant in Stanford's Office of Technology Licensing, doesn't take that duty lightly. When royalties for the deceased geneticist began to build up, she was determined to find an heir.

It took more than year, including dead-end searches through newspaper obituaries and calls to his former colleagues. Eventually, after reaching the inventor's ex-wife, who hadn't heard about his death — "I left her this strange message" — Ms. Fuller was able to reach his mother. (Honoring the family's request, Stanford asked The Chronicle not to identify any of the parties.)

Even now, when Ms. Fuller rereads the letter brimming with a mother's pride and pleasure at being able to divide the royalties among the inventor's five nephews in college, she finds herself choking up.

The patent is still generating income, and every year Ms. Fuller sends the check along with a little note on the generic cards that Stanford sends to all 600-plus of its inventors. She can now count on getting a nice note back from the mother: "It's kind of like I have a relationship with her, just from sending her the money."

For Ms. Kieweg, now married with a daughter, and an assistant professor of mechanical engineering at Kansas, where her father had received his Ph.D., the payment was a one-time event. But she's no less grateful.

After years of trying, Central Florida licensed several of Mr. Driscoll's patents on artificial intelligence and natural-language search in 2005 to the company Intellectual Ventures Management. In early 2006, Mr. Miner found Ms. Kieweg to tell her about her share of the payments as heir. (Luckily, his search had turned up a hit on a Web site from her days as a graduate student at Duke University, where she still used her maiden name.)

The experience triggered sweet memories for her. When she was a high-school kid, her father used to pay her \$5 an hour to compile data. "I would sit in his office floor and organize his journals," says Ms. Kieweg, 34. "I remember him showing me this thing called e-mail."

His inventive spirit extended beyond his university lab. Once, she recalls, he tried to automate the garden sprinkler system by tying it into a small home computer. "I don't know if it ever worked," she says.

Brian S. Steinberger, an Orlando patent lawyer who recalls several all-nighters with Mr. Driscoll, working on filings, says his friend would have loved knowing that Central Florida's efforts have turned those patents into a windfall for Ms. Kieweg: "His daughter was the pride of his life."

Central Florida officials say the deal with Intellectual Ventures prevents them from saying how the inventions are being used, and Ms. Kieweg doesn't want to say how much she received. And no, she says, she and her husband didn't jaunt off to Paris with the money. "We're savers," she says. Their only splurge: dumping their old pickup truck and exchanging it for a car more suitable for a young family.

Of course, not every situation goes so smoothly. Patent royalties can lead to some hard feelings.

Robin Rasor, director of licensing at the University of Michigan, recalls one inventor from her days at Ohio State University who held off even disclosing his invention to the institution until after his divorce was final, to make certain that his soon-to-be ex-wife wouldn't have a claim on any future revenues from it.

Another time, says Ms. Rasor, she got an angry call from the ex-wife of a faculty member who had read in the newspaper about how a successfully commercialized discovery would bring in money for the inventor. "We weren't trained to deal with divorce lawyers," she says.

Indeed, a generation ago patents and licenses, much less divorce lawyers, were barely on universities' radar screens. But the passage of the federal Bayh-Dole Act, in 1980, spurred hundreds of institutions to set up technology-transfer shops. And now that the number of those with portfolios of patents has grown, it is much likelier that complications involving royalties could anger more than just ex-spouses.

Just such a complication recently arose at one public university, where the technology-transfer official agreed to be interviewed only if he wasn't identified. A professor's invention has begun to pay off, but university lawyers were reluctant to pay the proceeds to his estate without a mountain of documentation establishing that it was the proper beneficiary. It left the inventor's heir with some bitter feelings.

As technology transfer matures, "universities really ought to think about how they're going to find and track down the heirs," this official says. "If you do it right, everybody's happy," he says. "But if it's not done right, it can be really bad."

# Orlando Sentinel

## Now some good news

### We think: UCF's success in landing research grants helps the region's economy

When every other economic indicator seems to be headed down, research grants at the University of Central Florida keep going up. In the past decade, those grants have more than tripled for the university.

That's good for UCF, of course. The grants support cutting-edge research, which attracts top faculty and students and burnishes the school's reputation.

But it's also good for Central Florida's economy. Research at UCF has trained employees for businesses in the region and yielded new products for them. It also has led to the creation of new companies. It has been helping to lay the foundation for the kind of high-wage jobs that are essential to strengthening Central Florida's economy.

The university has chosen to focus its research in areas that integrate with sectors in the state and regional economies, including space, solar energy, computer simulation, lasers and biomedicine. That pulls in more private dollars from businesses in those areas as it helps them grow.

UCF collected a record \$122.8 million in research grants in the year that ended June 30. Of that total, almost half came from the federal government, a little more than a quarter from state government, and the rest from private sources.

So far this year, research grants for UCF have reached \$64.5 million, up about 12 percent from the same point last year in spite of the bad economy. The economic-stimulus package that Congress is expected to pass next month could bring more research dollars to the university, especially if it emphasizes developing alternative energy.

With the global economy increasingly driven by research and the jobs that come from it, UCF's success in attracting grants is an enviable asset for Central Florida.

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### IEEE Spectrum Patents Scorecard

Universities/Education/Training	Adjusted Pipeline Power
1 Massachusetts Institute of Technology	761
2 California Institute of Technology	584
3 University of California	573
4 Harvard University	514
5 Rice University	394
6 University of Texas	343
<b>7 University of Central Florida</b>	<b>242</b>
8 Georgia Institute of Technology	233
9 Stanford University	227
10 University of Wisconsin	194

*The rankings published in the April 2009 issue of IEEE Spectrum Online calculates a "pipeline power" ranking based on a variety of factors, including number of patents a university produces, their originality and their impact. UCF's total "power" ranking was 242, placing it in the top 10 alongside research institutions such as the Massachusetts Institute of Technology, the California Institute of Technology and Harvard University.*

# Orlando Sentinel

## UCF Named Top Innovator

The University of Central Florida has been ranked among the country's top 10 research universities by a national group that reviews how schools' newest patents affect technology.

UCF ranks eighth in the study, compiled mostly for use by investors and the high-tech industry. It appears in this month's edition of the trade journal *Intellectual Property Today*.

While many people may never see the ranking, called the Patent Scorecard, university officials are thrilled to be in the company of some of the nation's oldest and most prestigious colleges.

M.J. Soileau, UCF's vice president for research and commercialization, said it validates the work researchers have done.

The study doesn't just examine the number of inventions and ideas created. It measures their impact based on how often they have been cited in subsequent patents.

"It's a good, strong indication we're on the right track for preparing this region for development of the innovation economy, which is this century's economy," Soileau said. "We don't want to be always trying to provide incentives to companies to move here from California or someplace else. We want to develop our own companies."

### Cooking up fresh ideas

These 3 businesses have formed around technology created at UCF:

- Raydiance, an Orlando company that sells lasers that can remove materials such as tattoo ink from skin without surgery.
- Petra Solar Inc. licensed a half-dozen AC-DC power-conversion patents from UCF to make inexpensive, easily installed solar panels.
- RINI Technologies, which makes small, high-efficiency cooling devices in Oviedo for lasers and for emergency workers' heavy suits.

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### Fiscal Year 2009 Research Awards by Academic Unit

College	Research Amount
1 College of Engineering and Computer Science	\$ 21,119,278
2 Institute for Simulation and Training	\$ 16,597,511
3 College of Sciences	\$ 15,560,035
4 College of Education	\$ 14,784,463
5 Florida Solar Energy Center	\$ 11,553,436
6 College of Optics and Photonics (CREOL)	\$ 10,794,984
7 Burnett School of Biomedical Sciences	\$ 7,527,834
8 Administration and Other	\$ 6,163,582
9 Student Development and Enrollment Services	\$ 6,002,292
10 College of Health and Public Affairs	\$ 3,420,042
11 Advanced Materials Processing and Analysis Center	\$ 2,318,196
12 NanoScience Technology Center	\$ 2,316,568
13 College of Business Administration	\$ 1,518,432
14 College of Arts and Humanities	\$ 1,430,738
15 Rosen College of Hospitality Management	\$ 275,192
16 College of Medicine	\$ 214,177
17 College of Nursing	\$ 112,843
<b>TOTAL</b>	<b>\$121,709,603</b>

### Fiscal Year 2009 Funding

Total Funding	\$ 121,709,603
Total Funding - Industry	\$ 36,558,425
Total Funding - State	\$ 25,242,522
Total Funding - Federal	\$ 59,908,656
Total Proposal Amount	\$ 570,280,955
Total Proposal Count	1,412

*Editor's Note: In FY 2009, UCF adjusted certain categories of external sponsored awards that had previously been included in reporting by individual units. The result is a slight decrease in total overall extramural funding reported here.*

## ***UCF's 'Millionaires Club' recognizes faculty for sponsored research funding***

Here's an internal marketing idea that makes so much sense it engenders a 'Why didn't I think of that?' moment: An annual event into which the most successful researchers of the year are inducted into a prestigious "Millionaires Club." Recently, a record number of 32 researchers and their support staff from the Office of Research and Commercialization were inducted into the University of Central Florida Millionaires Club, which began in 2000 to celebrate the accomplishments of highly funded researchers.

The sole criteria for induction is external sponsored research funding of \$1 million or more during a given fiscal year. In the first year of the program, the six researchers recognized had cumulatively received \$11.7 million. This year's winners received a total of \$60.4 million.

"It's an opportunity to really showcase the growing level of research [funding] we're garnering, and to pause and think of the work that goes into those successes," says Eileen M. Smith, one of this year's winners and associate director of UCF's Media Convergence Laboratory in the Institute for Simulation and Training.

### **'Tongue in cheek'**

"We started the event when I took this job," recalls M. J. Soileau, VP for research and commercialization. "It was meant to be a bit of a tongue in cheek celebration

of those faculty who bust a gut out there hustling grants—to gather once a year to show our appreciation, and to have a little fun."

The award is also a serious recognition, as evidenced by the huge research dollars the researchers bring to the school, and they are formally honored with a certificate suitable for framing. However, says Soileau, he has always felt it important to infuse the event with a sense of humor. "In addition to the Millionaires Club we've had the 'Big Spender' award, for those who raised the most money, and the 'Lonesome Spouse' award for the person with the most proposals," he notes.

Soileau hails from Louisiana, and the event has always had a Cajun flavor to it—including the food. "Once we crossed over the \$100 million mark (\$103.4 million in annual research funding, to be exact), it reminded me of a high temperature, so we introduced a hot sauce," he recalls. And not just any hot sauce—it's Soileau's own concoction.

"The award you get now is a certificate plus a bottle of his hot sauce," explains Andrew Daire, PhD, executive director of the UCF Marriage and Family Research Institute, and a first-time inductee this year.

The whole "fun" element has a serious intent, says Soileau. "We deliberately make it fun because we do not want it to seem too much like all we care about

is the almighty dollar," he says. "Every little bit counts—even the smallest grant; some faculty members have worked their 'tushes' off writing very creative proposals and may not cross this major threshold, but they are still very important."

### **Recognition spurs results**

The annual event has accomplished more than just giving researchers "warm and fuzzy" feelings about their institution; it has driven some of them to work even harder at chasing grants and sponsored research deals. That was certainly the case with Daire, who is the principal investigator on a number of federal grants, with two in particular that total \$5.6 million over a five-year period.

"I got to the university in 2001, and I had always had an interest in writing grants," he recalls. "Once I heard about the Millionaires Club it became somewhat of a tangential goal I set for myself. I felt it would be nice to bring in enough external funding to be recognized, and it was definitely part of my motivation because I believe it is a significant milestone to reach. After all, only 31 other people in the university got it, and it was exciting to get the e-mail letting me know I had won."

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Office of Research & Commercialization

# MILLIONAIRES

The UCF Millionaires list was started in 2000 to celebrate the accomplishments of UCF's researchers much the same way universities celebrate the success of sports teams. This year marks the ninth edition, which recognizes researchers in areas ranging from education to simulation to photonics.

The sole criteria for entry into the exclusive order is externally sponsored research funding of \$1 million or more during a given fiscal year. The 2009 class of millionaires, and their cumulative funding for FY 2009, is as follows:

Ms. Lynn Hansen	Student Development and Enrollment Services	\$ 5,698,842
Dr. Sandra Robinson	College of Education	\$ 5,245,000
Dr. Denise Nicholson	Institute for Simulation and Training	\$ 3,568,005
Mr. Ernest Smart	Institute for Simulation and Training	\$ 3,322,611
Dr. Leonid Glebov	College of Optics and Photonics (CREOL)	\$ 2,081,013
Mr. Don Shirey, III	Florida Solar Energy Center	\$ 1,940,066
Ms. Carrie Whitcomb	College of Sciences	\$ 1,694,392
Dr. Mubarak Shah	College of Engineering and Computer Science	\$ 1,670,449
Dr. Martin Richardson	College of Optics and Photonics (CREOL)	\$ 1,650,007
Dr. Susan Wegmann	College of Education	\$ 1,645,000
Dr. Jaydeep Mukherjee	College of Engineering and Computer Science	\$ 1,544,250
Dr. Issa Batarseh	College of Engineering and Computer Science	\$ 1,537,369
Dr. Eduardo Salas	College of Sciences	\$ 1,362,609
Dr. Lee Cross	College of Education	\$ 1,320,021
Dr. David Metcalf	Institute for Simulation and Training	\$ 1,198,024
Ms. Eunice Choi	College of Business Administration	\$ 1,114,316
Dr. Chad Nye	College of Health and Public Affairs	\$ 1,066,798
Dr. James Fenton	Florida Solar Energy Center	\$ 1,053,497
Mr. Ronald Tarr	College of Engineering and Computer Science	\$ 1,013,897
Dr. Clint Bowers	College of Arts and Humanities	\$ 965,980