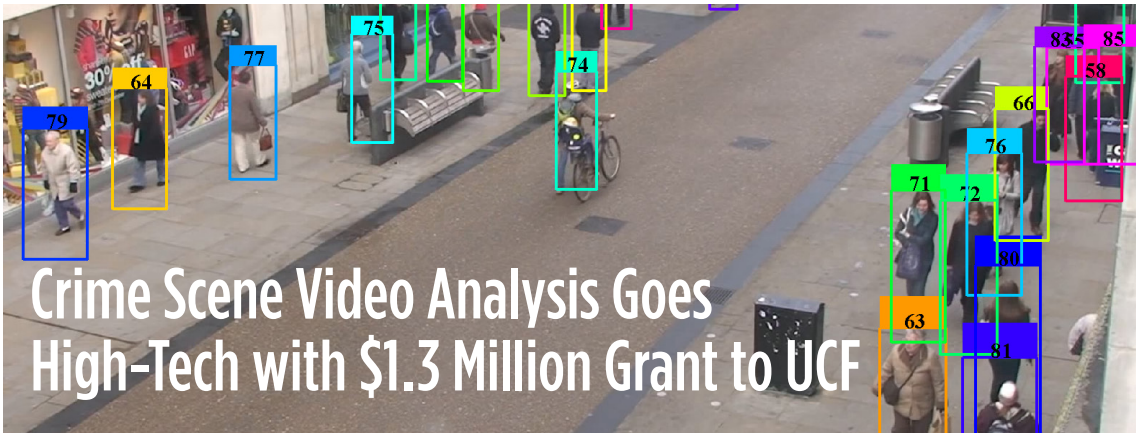


UCF Engineering & Computer Science

UNIVERSITY OF CENTRAL FLORIDA | ORLANDO

Opportunity Starts Here >>>



Crime Scene Video Analysis Goes High-Tech with \$1.3 Million Grant to UCF

A \$1.3 million grant from the National Institute of Justice is funding a new two-year project that may revolutionize the way police monitor and analyze crime scene surveillance video footage with technology developed at the University of Central Florida.

Computer scientists will develop and test computer vision technology that will automate the process of monitoring and reviewing thousands of hours of video streams fed-in from multiple cameras. It will be developed to work exceptionally fast to handle the large volume of data generated by the cameras, and will significantly reduce the burden placed on human investigators who perform the work.

Computer vision is a field that uses computers to quickly recognize and analyze patterns, gestures, facial features and objects in images such as photographs and videos.

The research team, led by Mubarak Shah, UCF Trustee Chair Professor of computer science and

director of the Center for Research in Computer Vision, includes Raymond Surette, professor of criminal justice at UCF, and Shih-Fu Chang, endowed professor and senior executive vice dean at Columbia University.

The team will develop the technology using live and archived videos supplied by the Orlando Police Department to build algorithms so that computers will have the ability to recognize and flag out-of-the-norm actions, gestures, events and behaviors that could indicate criminal activity.

For example, in video footage of the 2013 Boston Marathon bombing, the suspect was the only person in the large crowd who did not look back when an explosion ignited behind him.

The project will advance law enforcement's use of computer vision, which in the past has concentrated on facial recognition programs and license plate readers.

"Today there are too many surveillance cameras and too few human monitors," Shah said. "Watching multiple live-video camera feeds or retroactively reviewing long hours of video streams is a mind-numbing, error-prone task."

UCF and Columbia University researchers will first develop computer vision capabilities for the surveillance work and develop user-friendly interfaces based on the needs of police investigators.

Next, the technology will be field-tested in OPD's current camera monitoring room with an analytics workstation. The system will be linked to a new 11-camera system set up in a local neighborhood. Six cameras will be computer monitored, and five will be human monitored.

UCF Approves New Biomedical Engineering Master's Degree

The program will begin fall 2016, and will be housed in the Department of Mechanical and Aerospace Engineering. It will consist of 30 credit hours in one of three tracks: biofluids, biomechanics, or the biomedical engineering track for UCF's M.D. program.

The idea of the program came after UCF's College of Engineering & Computer Science and College of Medicine held an event in 2013 at which 60 faculty members spent a day learning about each other's specialties and how they could work collaboratively.

The two colleges have already hired joint faculty, set up new labs and mentorship programs, and are working on collaborative research efforts, such as cardiovascular medicine. Engineers are helping medical researchers understand systems such as how blood flows in the heart to design better treatments for heart blockages.

Other collaborators include the UCF College of Nursing, College of Optics & Photonics, and College of Sciences.

UCF engineering professor Alain Kassab will lead the new program. UCF is already recruiting faculty for an interdisciplinary Prosthetic Interfaces Research Cluster that Kassab also leads, which will be a focal point for world-class research and education for UCF scholars working on technology pertinent to medical applications, devices and systems.



Non-Profit Org.
U.S. Postage
PAID
Orlando FL
Permit No. 3575

COLLEGE OF ENGINEERING & COMPUTER SCIENCE
University of Central Florida
4000 Central Florida Blvd.
Orlando, FL 32816

NEW FACULTY, >>> NEW DEGREES

Our college is in an upward trajectory that is fueled by many new faculty hires joining our institution.

In 2015, UCF hired 200 new researchers and educators, and is hiring another 100 this year. Many of the 2016 hires will support UCF's six Faculty Research Clusters designed to leverage existing strengths and foster the development of strong, interdisciplinary teams focused on solving today's most challenging scientific and societal problems.

The clusters are Cyber Security and Privacy; Energy Conversion and Propulsion; Genomics and Bioinformatics; Prosthetic Interfaces; Renewable Energy Systems; and Sustainable Coastal Systems. Our college's faculty lead three clusters and are involved in all six.

The college now offers three new master's degrees, starting this fall: Biomedical Engineering (featured on Page 1), Data Analytics, and Healthcare Systems Engineering. These programs are expected to attract



Michael Georgiopoulos, Ph.D.
Dean

top-performing students and professionals who will matriculate under the guidance of our renowned professors and expert practitioners in the field.

UCF's new faculty and degree programs illustrate why we believe bigger is better. It means more educational and funded research opportunities, more ways to collaborate with experts across many disciplines, more resources, more diversity, and more ways to make a big impact in the community and society.

I welcome you to visit our campus and see why *U.S. News & World Report* ranks UCF the 13th most innovative university in the nation.

Michael Georgiopoulos, Dean

MEET OUR 2016 YOUNG FACULTY STARS

NSF CAREER, Air Force and DTRA Young Investigator Awardees



Subith Vasu

George Atia

Mingjie Lin

Sumit Jha

U.S. Defense Threat Reduction Agency Young Investigator Award

SUBITH VASU
Assistant Professor
Department of Mechanical & Aerospace Engineering

National Science Foundation CAREER Award

GEORGE ATIA
Assistant Professor
Department of Electrical & Computer Engineering

National Science Foundation CAREER Award

MINGJIE LIN
Assistant Professor
Department of Electrical & Computer Engineering

Air Force Young Investigator Award

SUMIT JHA
Assistant Professor
Department of Computer Science
One of two awardees at UCF and only 56 in the U.S.



UCF's Distinguished Engineering Alumni

Arun Ramaswamy, Ph.D., '92, '94
Chief Engineer, Nielsen College Distinguished Alumnus 2016

The highest College of Engineering & Computer Science alumni honor goes to one of the top inventors at Nielsen. Ramaswamy is credited with 86 patents and several pending. He's won three Engineering Emmys for Innovation from The National Academy of Television Arts & Sciences, and numerous other awards. He holds UCF master's and doctoral electrical engineering degrees.



Arun Ramaswamy, Ph.D.

Justin Corini, '09
Systems Integration and Test Engineer, Harris Corp. AD ASTRA Award Winner 2016

This award recognizes rising stars. Corini works as an integrated team leader in the Space and Intelligence Systems Segment. He is Harris Corporation's recruiting lead for UCF – the company's No. 1 workforce supplier worldwide – helping Harris' hiring managers gain direct access to students. He holds a bachelor's degree in mechanical engineering.



Justin Corini

STUDENT

Leigh Nash, '13 Scholar, Jet Fuel Tester

The aerospace engineering master's degree student is one of only 10 in the nation to receive NASA's prestigious Advanced STEM Training and Research (ASTAR) Fellowship to perfect a new method for testing jet fuels. The fellowship allows her to conduct NASA-approved research at UCF and at the agency's Glenn Research Center in Cleveland this summer. As an undergraduate, Nash played piccolo for the Marching Knights.



FACULTY

Issa Batarseh, Ph.D. Prolific Inventor

The electrical and computer engineering professor has been named a fellow of the National Academy of Inventors. He joined UCF in 1991 and established the Florida Power Electronics Center and since has helped secure more than \$12 million for his work developing innovative electronic power systems to convert energy collected in solar panels into domestic grids. He is also a fellow of IEEE and AAAS, and holds 27 patents.



ALUMNUS

Guillermo Novo, '84 Executive, UCF Donor

The industrial engineering alumnus has been named CEO of Versum Materials, which will separate from Air Products later this year. He established the Novo Family International Expansion Fund to benefit engineering and computer science students; has served on the Dean's Advisory Board; and was a guest leadership speaker for students. "I've traveled the world and know the advantage of experiencing varied cultures. I give to UCF to ensure students get international experiences that will provide them an enormous advantage at their first job."



OUR STARS

OUR PEOPLE DOING GREAT WORK

He Loves Antennas and Helping Students

Professor Creates Endowed Funds at UCF

Raj Mittra, Ph. D., knows the value of investing in students, their education, and the importance of bringing together key minds in the engineering community. That's why he created the Raj Mittra Endowed Funds at UCF.

The renowned electromagnetic communications scholar is a courtesy professor in the UCF Department of Electrical and Computer Engineering. Throughout his career, he has balanced distinguished academic positions with a worldwide consultancy serving the aerospace, communications and computer industries, connecting the best thinkers in the field.

The creation of the endowed funds – guaranteed money that will support UCF now and always – benefits four areas in the Department of Electrical and Computer Engineering: a professorship, a graduate fellowship, an academic journal, and a distinguished lecture series. While the majority of the funding for these endowments will come from a planned gift in his estate, he has already begun giving to them.

"Universities never have enough money to bring in people with reputations because it's competitive. Endowed professorships enable the university to hire such people," Mittra said.

His idea of giving back began while completing his doctoral degree at the University of Toronto. A professor took Mittra under his wing, offering him the financial support he needed to succeed in his area of interest: antennas.

Mittra never forgot that.

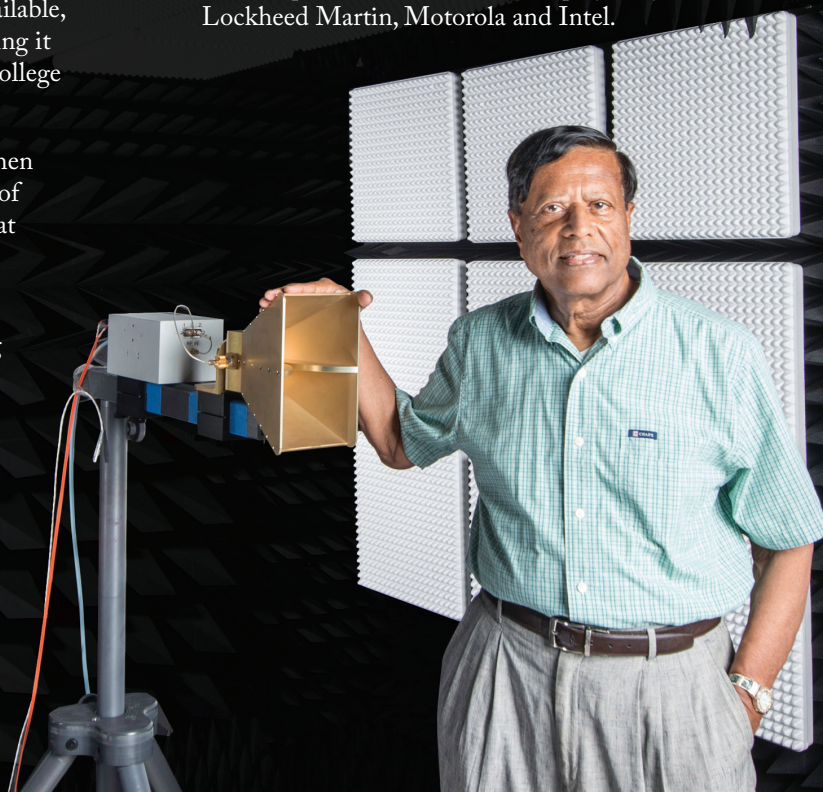
Inspired by his former professor, Mittra paid it forward during his time as an electrical engineering professor at the University of Illinois when one of his graduate students needed a computer. Money wasn't available, but that didn't stop Mittra from making it happen. He made a donation to the college to buy the computer.

"That's how it got started," he said. "Then I got hooked – first at the University of Illinois, then at Penn State, and now at the University of Central Florida."

He strongly believes that supporting graduate students is key to enhancing a university's research performance, reputation and visibility.

"High quality graduate students are in short supply and there is never enough money to support the graduate students in the first place," he said. "To have that guarantee come from an endowment is important."

Mittra has graduated about 135 doctoral students and has more than 1,000 publication credits. Prior to joining UCF in 2014, he was involved in a small way with the design of the stealth bomber through his association with Northrup Grumman, and was employed by Lockheed Martin, Motorola and Intel.



GIVE NOW World-class education, innovative programs and pioneering research are the hallmarks of our college. Email Robin.Knight@ucf.edu or call 407-823-2241.

New Smart Grid Lab Boosts UCF's National Role

A new Smart Grid Lab is enhancing the University of Central Florida's leading role in modernizing and sustaining the nation's power grid.

The 660-square-foot lab in the Harris Engineering Center will provide a real-world environment and hands-on experience using advanced technology – real-time digital simulation, hardware-in-the-loop testing, power system protection and more – for research faculty and about 220 students per year.

"The lab will enable us to perform advanced smart grid research, develop curriculum and course offerings, partner with utility companies on their research and development projects, and collaborate with other universities

and industry," said Zhihua Qu, chair, UCF Department of Electrical and Computer Engineering.

The Smart Grid Lab at UCF is the latest development in a national, multi-partner consortium that Qu leads, known

as "FEEDER," or the Foundations for Engineering Education for Distributed Energy Resources.

FEEDER launched in 2013 with an initial grant of \$3.2 million from the U.S. Department of Energy, and has grown to more than 50 partners located nationwide from the east coast to California and Hawaii: two national labs, 12 universities, 22 utilities and co-ops, and 15 industry partners.

The partners are upgrading and sustaining the power grid through research, and by educating the current grid workforce, and recruiting and educating the future workforce.

Electrical engineering students Matt Aberman and Siddarth Vellakovil Rajamani.



Students Design and Launch Floating Solar Array

An innovative 20-panel solar array that was designed and assembled by five mechanical engineering senior design students now floats on a UCF retention pond.

The power generated from the proof-of-concept 5-kilowatt system – enough to power a typical home – will feed into the campus grid and provide UCF an opportunity to test the distribution technology. If tests are successful, UCF may scale-up the array to a 900-kilowatt system to generate enough

power to fully offset the energy consumed by Bright House Networks Stadium.

The floating system helps UCF conserve scarce land and meet its climate-neutrality goal.

The system's structural base uses pre-manufactured floatation devices made of high-density polyethylene, and is anchored by steel cabling and chains at the pond banks. The team has accounted for wave patterns, wind and other environmental considerations in their design

that is similar in concept to a floating dock.

"This solar array will leave our mark on the UCF campus and ultimately a small mark on the world's changing climate," said team member Rubin York.

The five students, who spent their entire senior year designing the system, plan to graduate in May. They are Rudolph Jara, Geoffrey Gregory, William Rumprik, Rebecca Shea and York (pictured).

See the full story with videos at cecs.ucf.edu.

STUDENT SUCCESS



Sofia Baptista

Academic and Athlete

Civil engineering senior Sofia Baptista came to the U.S. from Portugal in 2012 after accepting a full UCF athletics scholarship to pursue her passions, engineering and tennis. Successful on the court and in class, Baptista has eight wins for the Knights in nine matches from the No. 2 position this season, while holding a 3.84 GPA. Baptista mentors engineering and computer science freshman student athletes, and is in the American Society of Civil Engineers.

Connect with us on social media at:

 UCFEngineering

 @UCFCECS

OPPORTUNITY >>>
STARTS HERE

For more information about the
COLLEGE OF ENGINEERING & COMPUTER SCIENCE
see <<<cecs.ucf.edu>>>