

UCF PROGRAMMING TEAM AMONG WORLD'S BEST | \$1.5 MILLION TO HYPERSONIC PROPULSION RESEARCH | DERIVING CLEAN FUEL FROM SEAWATER | WORLD-CHANGING READABILITY TECHNOLOGY STUDENT-MADE AIRCRAFT #1 U.S. AND #2 WORLD | \$40 MILLION TRANSFORMATIONAL GIFT | MORE INSIDE



UCF College of Engineering and Computer Science

# NEWS HIGHLIGHTS 2021



## PLUGGED IN

### Celebrating the New Microgrid Control Lab, Powered by FPL and G.E. Digital

UCF hosted a “plug-in” celebration Nov. 9 to announce the Microgrid Control Lab, sponsored by Florida Power & Light and G.E. Digital. The advanced lab provides electrical and computer engineering students industry-standard opportunities to design and test technology that will transform the capabilities of the nation’s power grid to handle the increasing influx of energy from renewable sources.

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## NATIONAL CHAMPIONS TWICE IN 2021

### UCF Collegiate Cybersecurity Competition Team

In April 2021, UCF won Raytheon’s National Collegiate Cyber Defense Competition, the largest of its kind in the U.S. And in November, UCF won the U.S. Department of Energy’s National Cyberforce Competition against 119 other teams from 105 universities.

[READ MORE ABOUT APRIL'S WIN](#)

[READ MORE ABOUT NOVEMBER'S WIN](#)



UNIVERSITY OF CENTRAL FLORIDA | ORLANDO

# GAME-CHANGING RESEARCH



NEW  
RESEARCH FUNDING

**\$48  
Million**

**to UCF CECS Annually**  
(Average since 2018)



**\$1.5 Million**  
Defense Award  
for UCF Hypersonic  
Propulsion Research

Led by **Kareem Ahmed, Ph.D.**, Department of Mechanical and Aerospace Engineering, the research seeks to develop high-performance fuels for hypersonic propulsion.

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See also UCF's top research story of 2021: "Flying at Speeds Up to Mach 16 Could Become Reality with UCF's Developing Propulsion System," summarizing Ahmed's co-authored study published in *Proceedings of the National Academy of Sciences*.

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## STRENGTHENING OUR ENERGY, OUR ECONOMY

from "Strengthening Our Nation" in the Fall 2021 issue of *Pegasus*

### **\$3.2 Million DOE Award to Empower the Power Grid**

**Wei Sun, Ph.D.**, Department of Electrical and Computer Engineering, and his team received a \$3.2 million award from the U.S. Department of Energy in August to develop advanced technology that can monitor the power grid and defend it from failures.

### **\$1 Million DARPA Award to Uncover Fraud**

**Paul Gazzillo, Ph.D.**, Department of Computer Science, received a nearly \$1 million Defense Advanced Research Projects Agency Young Faculty award in August. His research team is investigating corporate relationships by applying "automated reasoning" logic to data to help federal investigators uncover corporate fraud.

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### **Four 2021 NSF CAREER Awards**

Of UCF's five recipients of the highly coveted early-career award from the National Science Foundation, four are in the College of Engineering and Computer Science. Meet the 2021 awardees here.

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### **Global Storm Surge Database Created with UCF-Developed Methods**

Doctoral student Michael Getachew Tadesse and Thomas Wahl, Ph.D., Department of Civil, Environmental and Construction Engineering, are using advanced technology to help fill in gaps in historical data to help scientists better predict storm surge impact around the world. Their efforts are contributing to an international online Database of Global Storm Surge Reconstructions, published in *Nature Scientific Data* in May 2021.

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### **Deriving Clean Fuel from Seawater with UCF-Made Nanomaterial**

**Yang Yang, Ph.D.**, Department of Materials Science and Engineering, and his team's new nanoscale material can effectively and efficiently split seawater into oxygen and a clean energy fuel – hydrogen – a process known as electrolysis. The new material offers the high performance and stability needed for industrial-scale electrolysis and was explained in the journal *Advanced Materials* in July 2021.

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# ON THE NATIONAL AND WORLD STAGE



## World-Changing Idea UCF Readability Technology

*Fast Company* magazine named a technology pioneered at UCF among its 2021 “World-Changing Ideas.” The winners were selected from more than 4,000 nominations. **Ben Sawyer '14MS '15PhD**, Dept. of Industrial Engineering and Management Systems, and his team are working to make it easier for people to read digital text at a high speed with increased comprehension.

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## National Safety Council's Highest Honor

**Mohamed Abdel-Aty, Ph.D.**, UCF's renowned transportation safety expert, received NSC's Distinguished Service to Safety Award on Oct. 11 for his pioneering research to make roads safer. His work has transformed transportation safety management practices in the U.S. and around the world.

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## Miss USA 2021 Finalist

Aerospace engineering student **Ashley Cariño** was crowned Miss Florida in July, in her first pageant competition. She placed third in the Miss USA competition on Nov. 28.

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## UCF AMONG WORLD'S BEST IN COMPETITIVE PROGRAMMING

### 2021 Programming Team Advances to World Finals

In August, UCF virtually hosted the week-long 2021 ICPC North America Programming Camp and the ICPC North America Championship with more than 100 of the continent's elite computing students from 48



universities competing. UCF's team ousted teams from top schools such as Stanford, Harvard and CalTech to earn an exclusive spot in the 2021 ICPC World Finals.

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### 2020 Programming Team Finishes in World's Top 20

A UCF team finished 17th overall in the 2020 ICPC World Finals competition. Held in Moscow on Oct. 5, 2021, the contest was originally scheduled for June 2020 but was delayed due to the pandemic. A field of 117 teams competed in the exclusive finals round after advancing from contests among 20,000+ regional teams representing 3,000 universities from 100+ countries.

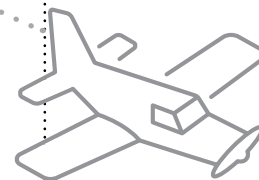
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### Using AI to Detect Sarcasm in Social Media

The DARPA-funded project is led by **Ivan Garibay '0OMS '04PhD**, Dept. of Industrial Engineering and Management Systems, who directs UCF's Artificial Intelligence and Big Data Initiative. His team taught a computer model to find patterns that often indicate sarcasm. The research was widely covered in media and mentioned on NBC's *The Tonight Show Starring Jimmy Fallon* in May.

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### UCF Student-Engineered Remote-Control Aircraft Takes 1st in U.S., 2nd in World



A team of eight UCF aerospace engineering students designed, built and flew the best remote-controlled aircraft in the U.S. in a May 2021 international competition sponsored by the American Institute of Aeronautics and Astronautics.

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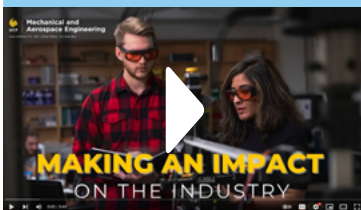
# OPENING DOORS TO THE WORLD



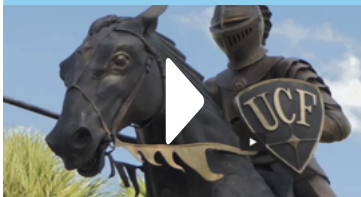
## PRESS PLAY

### Two Departmental Videos Premier

See how students and alumni of UCF's Dept. of Mechanical and Aerospace Engineering are making a mark in industry.



Learn how UCF's Dept. of Materials Science and Engineering is advancing this multifaceted field.



CECS'S YOUTUBE CHANNEL

**15,200+ views**



**42K**  
MINUTES WATCHED  
in 2021

## INNOVATIVE COLLABORATIONS

### UCF Technology Ventures Symposium

Moving UCF's Hidden Technology Gems to Market

The inaugural Feb. 17 virtual symposium featured UCF student and faculty innovators, investors, alumni entrepreneurs and more. They showcased technologies such as color-changing fabric, long-lasting disinfectant, AI applications and more. Featured speakers offered information and inspiration to move UCF's investment-ready technology from the lab to the marketplace. The day included a startup pitch competition for students and alumni vying for a \$10K prize.

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### Virtual Faculty Research Talks Continue

115+ Presenters in 2021

The Friday lunchtime series that began in 2020 featured 115+ presenters in 2021, bringing the number of presentations above 220 since premiering. In the talks, UCF faculty discuss their cutting-edge research to spark collaborations; and industry guest speakers overview their partnerships with UCF. Recorded presentations posted to CECS's YouTube channel garnered thousands of views in 2021.

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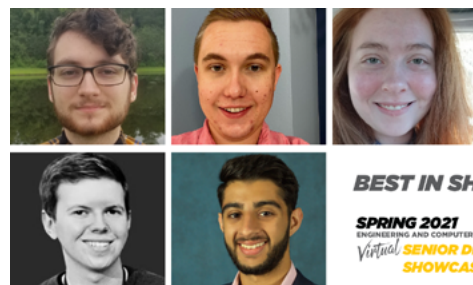
### Virtual Senior Design Showcase is Largest in College History

Online Format Brings in 150+ Judges

The Spring 2021 video showcase featured 171 projects made by collaborative teams of graduating seniors. The virtual format enabled 150+ engineering and computer science alumni — from around the U.S. and France — to serve as judges. The Fall 2021 hybrid showcase (online and live finals) allowed for 175+ alumni judges to participate.

[READ MORE ABOUT SPRING 2021 EVENT](#)

[VISIT THE SENIOR DESIGN SHOWCASE PAGE](#)  
[SEE THE FALL 2021 SHOWCASE AND MORE](#)



### College Virtual Orientation for Parents and Families

On Aug. 19, 100 participants from more than 12 states and internationally Zoomed-in to attend the first CECS New Parent and Family Orientation, organized by college staff to help families of new students get to know the UCF College of Engineering and Computer Science: one of the largest colleges of its kind in the nation.

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# SERVING STUDENTS INTO THE FUTURE



## NEW IN 2021

### New Department Leaders

In 2021, **Yan Solihin, Ph.D.**, became interim chair of the Dept. of Computer Science; and **Murat Yuksel, Ph.D.**, became interim chair of the Dept. of Electrical and Computer Engineering. They replaced former chairs **Gary Leavens, Ph.D.** (CS) and **Zhihua Gu, Ph.D.** (ECE) who remain at UCF to teach and pursue research.



Yan Solihin, Ph.D.



Murat Yuksel, Ph.D.

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### New M.S. Programs for In-Demand Computing Fields

UCF's new master's degree programs in Computer Vision, and Cyber Security and Privacy began in Fall 2021, to help students gain a competitive edge and hands-on experience in these specialized fields of computer science. UCF is one of only two universities in the nation to offer a master's degree in Computer Vision.

[READ MORE ABOUT M.S. COMPUTER VISION](#)

[READ MORE ABOUT M.S. CYBER SECURITY AND PRIVACY](#)



### NSF Awards UCF \$2.9 Million for Cybersecurity Scholarships

The National Science Foundation's award will provide scholarships for students to pursue cybersecurity training and research at UCF. After graduation, they must work for a government organization in a cybersecurity position.

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### Philanthropist Makes \$40 Million Transformational Investment in UCF

MacKenzie Scott's June 2021 gift, the largest in university history, will fuel student success, academic excellence and faculty research for generations, and casts a spotlight on UCF's strength in transforming lives for the better.

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**ALL GIFTS  
LARGE AND SMALL  
HELP STUDENTS.  
PLEASE GIVE  
TO CECS.**

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