CHARGED

TO EMPOWER AND SERVE

THE MAGAZINE OF THE UCF DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING FALL 2023

ELECTRIFYING GROWTH

ECE'S REMARKABLE YEAR OF EXPANSION

UCF

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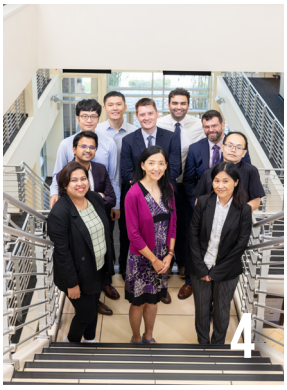

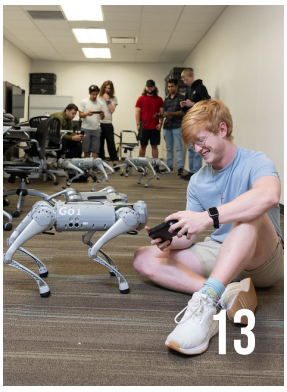

CHARGED

FALL 2023

CHARGED is a publication of the University of Central Florida Department of Electrical and Computer Engineering that showcases the accomplishments and accolades of its students, faculty and alumni.

UCF COLLEGE OF ENGINEERING AND COMPUTER SCIENCE DEAN
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A MESSAGE FROM THE CHAIR

Welcome to the inaugural edition of "CHARGED," the magazine of UCF Department of Electrical and Computer Engineering! We hope to share our impactful and memorable stories with you annually in this magazine as well as the goals that we are envisioning for our collective future.

The past year was very eventful. Under new leadership, the university has set aggressive goals for growth in several areas of research excellence including artificial intelligence, semiconductors, renewable energy and space technologies, all selected to receive significant funding for hiring new faculty. ECE is involved in all of these areas, providing a unique opportunity to plan for a much brighter future with a targeted 50% growth in the number of faculty as part of a five-year plan.

"CHARGED" by such positive prospects, we had an extremely busy hiring season that concluded with a great success. In Fall 2023, we welcomed 10 new faculty. We will be welcoming two other new faculty in the Spring 2024. We now have 45 tenured and tenure-track faculty.

Committed to serve our most important stakeholders, our students and our industrial partners, we have made significant strides in establishing industry sponsored scholarships for our students from some of the biggest companies in microelectronics and computer markets such as Advanced Micro Devices (AMD), Intel and Texas Instruments.

Last but not least, our faculty, staff and students continue to excel in what they do as evidenced by the numerous awards, promotions and high-impact research funds. The ECE family is as vibrant as it has ever been and we invite you to visit us in the beautiful city of Orlando either to explore the endless opportunities we can offer or just to make lasting friendships. Stay tuned and we will continue to communicate our news through all our social media outlets, our website and our publications, including the next edition of *CHARGED*.

REZA ABDOLVAND, PH.D.
Chair,
UCF Department of Electrical and Computer Engineering

By the Numbers A SNAPSHOT OF DEPARTMENT ACHIEVEMENTS

DEGREES AWARDED

	BS	MS	PH.D.
COMPUTER ENGINEERING	158	16	4
ELECTRICAL ENGINEERING	159	31	20

RESEARCH FUNDING

$10.6M

GRADUATE PROGRAM RANKINGS

U.S. News & World Report

COMPUTER ENGINEERING **57**

ELECTRICAL ENGINEERING **58**

ENROLLMENT FALL 2023

	BS	MS	PH.D.
COMPUTER ENGINEERING	734	41	25
ELECTRICAL ENGINEERING	601	43	61

FACULTY HONORS

6 IEEE FELLOWS

1 NAE MEMBER

ELECTRIFYING Growth

A REMARKABLE YEAR OF EXPANSION

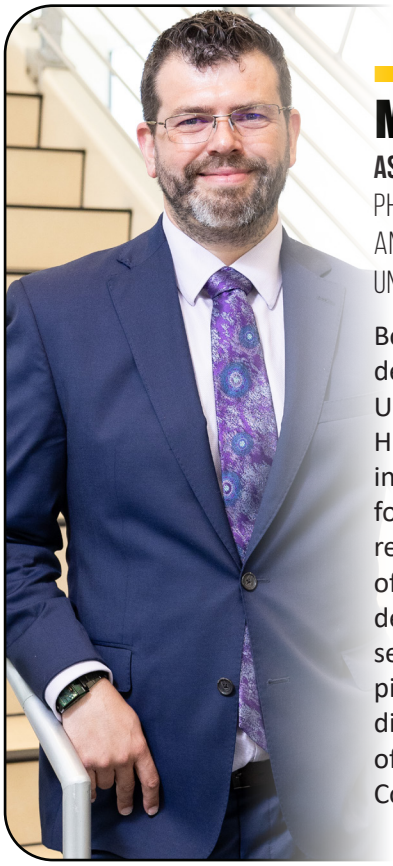
A history-making 12 new faculty members are set to join the UCF Department of Electrical and Computer Engineering for the 2023-2024 academic year. This highly qualified group of researchers and educators will bring a wealth of new knowledge, spanning from artificial intelligence and hardware security to micro- and nanoscale devices and materials for extreme environments. Their expertise will significantly enrich the department's research and educational capabilities.

This marks the largest intake of faculty members in a single year in the department's history. The hiring of this cohort aligns with our larger vision of expanding the department to better serve our stakeholders, including students and industrial partners, all while enhancing the department's reputation and programs.

"I am ecstatic about each member of this cohort joining our ECE family and extremely optimistic about our future with this substantial infusion of talent," says Department Chair Reza Abdolvand.

With the addition of these members, the department has nearly doubled the number of female faculty, now constituting over 15% of the ECE faculty. Additionally, the number of computer engineering faculty has doubled, making up approximately 30% of the ECE faculty. This new composition better aligns with the student population, considering that more than half of the undergraduate student body is enrolled in the computer engineering program, and more than 20% of the student body is female.

In the upcoming year's hiring cycle, the department expects to add several new faculty members to the department, aiming to have more than 55 faculty members within a 3-year time frame.

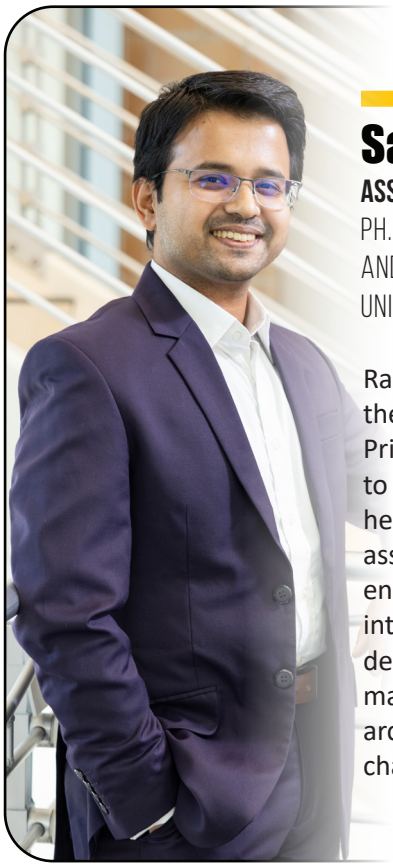


Mike Borowczak

ASSOCIATE PROFESSOR

PH.D. IN COMPUTER ENGINEERING AND COMPUTER SCIENCE, UNIVERSITY OF CINCINNATI

Borowczak joins the department from The University of Wyoming. His research interests include design automation for hardware security and resistance; secure Internet of Things systems; and the development of a sustainable semiconductor workforce pipeline. Borowczak is the director of the UCF Design of Resilient Architectures for Computing (DRACO) Lab.



Sazadur Rahman

ASSISTANT PROFESSOR

PH.D. IN ELECTRICAL, ELECTRONICS AND COMMUNICATIONS ENGINEERING, UNIVERSITY OF FLORIDA

Rahman is a member of the UCF Cyber Security and Privacy Cluster. He comes to UCF from Intel, where he served as a security assurance architecture engineer. His research interests include electronic design automation, machine learning, secure architecture and supply chain security.

Jaesung Lee

ASSISTANT PROFESSOR

PH.D. IN ELECTRICAL ENGINEERING, CASE WESTERN RESERVE UNIVERSITY

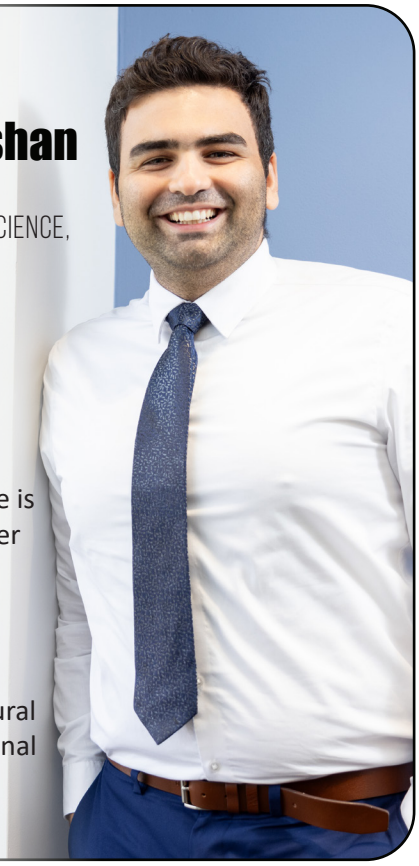
Lee joins the department from the University of Texas at El Paso. His research interests include nanoscale solid-state electronic devices, micro- ande nanoelectromechanical systems and quantum materials for solid-state qubits and quantum acoustics.

Piotr Kulik

ASSISTANT PROFESSOR

PH.D. IN ELECTRICAL ENGINEERING, NORTHEASTERN UNIVERSITY

Kulik joins the department from Metamagnetics Inc., where he served as lead of the deep tech and algorithms team. Kulik's research interests include nanofabrication of thin-film materials, multiphysics devices, and microsystems for sensing and communication.



Mohsen Rakhshan

ASSISTANT PROFESSOR

PH.D. IN COGNITIVE NEUROSCIENCE, DARTMOUTH COLLEGE

Rakhshan joins the department from Johns Hopkins Medical School, where he was a Biomedical Engineering Distinguished Fellow. He is a contributing researcher of the UCF Disability, Aging and Technology Cluster. His research interests include brain-machine interfaces, neural prostheses, computational neuroscience, control theory and robotics.

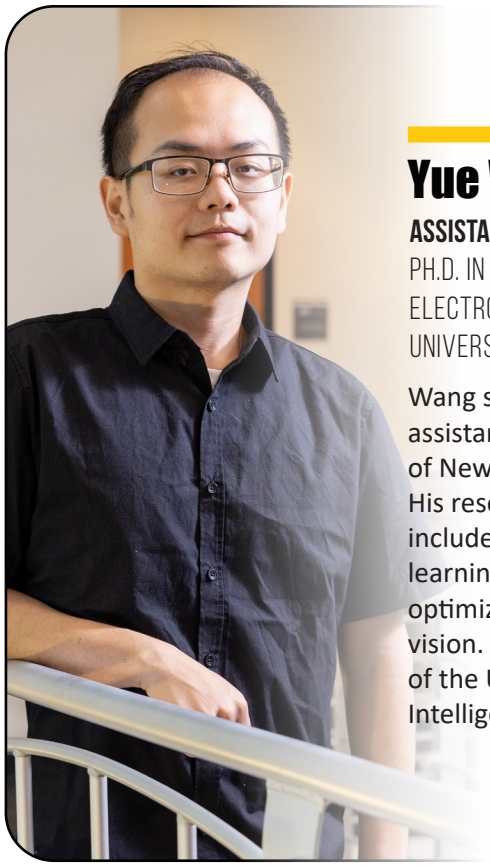
Enxia Zhang

ASSISTANT PROFESSOR

PH.D. IN MICROELECTRONICS AND SOLID STATE ELECTRONICS, CHINESE ACADEMY OF SCIENCES

Zhang joins UCF from Vanderbilt University. Her research interests include reliability and radiation response in advanced microelectric devices, compound semiconductors, photonic devices and radiation response of emerging materials and devices for space applications.

ELECTRIFYING Growth



Yue Wang

ASSISTANT PROFESSOR

PH.D. IN ELECTRICAL AND ELECTRONICS ENGINEERING, UNIVERSITY AT BUFFALO

Wang served as a research assistant at State University of New York Buffalo. His research interests include reinforcement learning, machine learning, optimization and computer vision. He is a member of the UCF Artificial Intelligence Initiative.

Xin Xin

ASSISTANT PROFESSOR

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING, UNIVERSITY OF PITTSBURGH

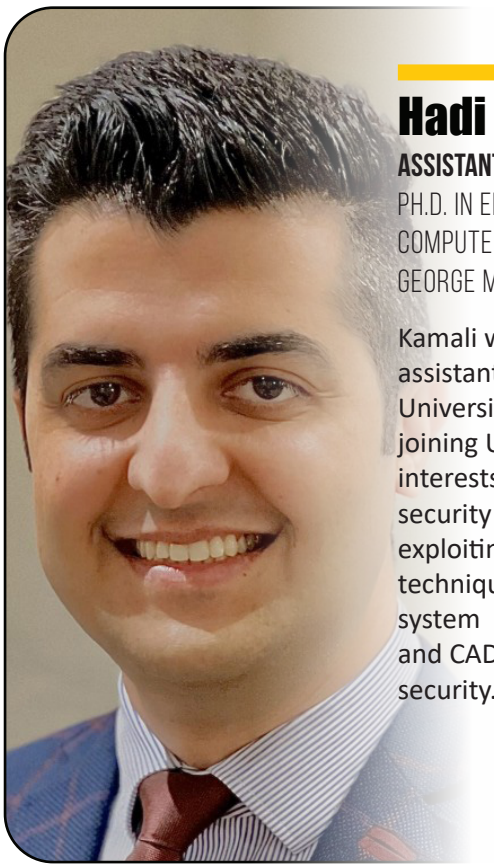
Xin's research interests include computer architecture, memory hierarchy, domain-specific architecture and reliable hardware and software systems.

Shahana Ibrahim

ASSISTANT PROFESSOR

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING, OREGON STATE UNIVERSITY

Ibrahim was a research assistant at Oregon State University before coming to UCF. Her research focus is designing provable and efficient methods for various data-driven tasks in machine learning and artificial intelligence. She also works in the fields of signal processing and optimization with applications of various structured factorization tools and related algorithm design.

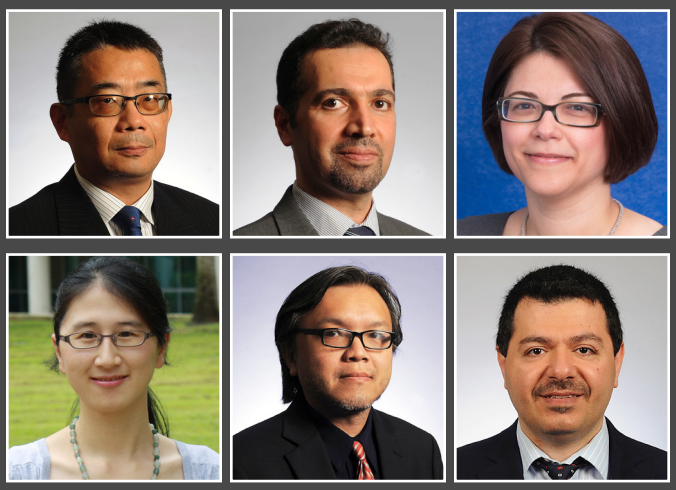


Hadi M. Kamali

ASSISTANT PROFESSOR

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING, GEORGE MASON UNIVERSITY

Kamali was a research assistant professor at the University of Florida before joining UCF. His research interests include hardware security with a focus on exploiting IP protection techniques, very large system integration circuits and CAD frameworks for security.



Moving On Up

CELEBRATING 2022-2023 FACULTY PROMOTIONS

More than 143 UCF faculty members, including six from the Department of Electrical and Computer Engineering, recently achieved significant career milestones in earning promotion and tenure for the 2022-23 cycle.

Of the 50 candidates approved by the UCF Board of Trustees, 49 received a promotion to associate professor. The president and provost make final decisions on promotions following reviews and recommendations from colleges and units.

"The faculty members approved this year for promotion and tenure distinguish themselves through excellence and high productivity in teaching, research and service," says Michael D. Johnson, UCF's provost and executive vice president for academic affairs. "They have met a lofty and demanding standard, and I am confident they will contribute significantly to advancing UCF as the University for the Future."

Promotion to Professor:
Minjie Lin, Yaser Fallah and Azadeh Vosoughi

Promotion to Associate Professor with Tenure:
Qun Zhou Sun

Promotion to Senior Lecturer:
Chung Yong Chan

Promotion to Associate Lecturer:
Zakhia Abichar

Sonali Das

LECTURER

PH.D. IN ENGINEERING,
INDIAN INSTITUTE OF ENGINEERING SCIENCE AND TECHNOLOGY

Das has been with UCF over the last few years as a postdoctoral associate and adjunct professor. Her research interests include device electronics, solar cells and photo transistors, emerging micro/nano fabrication technologies and optoelectronic synaptic and neuromorphic devices.

Di Wu

ASSISTANT PROFESSOR

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING,
UNIVERSITY OF WISCONSIN - MADISON

Wu's research interests include computer architecture, heterogenous systems, domain-specific acceleration and emerging computing. He is the director of the Unary, Neuromorphic, Reconfigurable and Yet more computing (UNARY) Lab.

ADVANCING Artificial Intelligence

UCF RESEARCHER RECEIVES DOE FUNDING TO ADVANCE HUMAN UNDERSTANDING OF AI REASONING

By Katrina Cabansay

A University of Central Florida researcher has received funding from the U.S. Department of Energy (DOE) to enhance the current understanding of artificial intelligence (AI) reasoning.

The project focuses on developing algorithms to create robust multi-modal explanations for foundation, or large, AI models through the exploration of several novel explainable AI methods. The DOE recently awarded $400,000 to fund the project.

The project was one of 22 proposals selected for the DOE's 2022 Exploratory Research for Extreme-Scale Science (EXPRESS) grant, which promotes the study of innovative, high-impact ideas for advancing scientific discovery.

Unlike task-specific models, foundation models are trained with a large set of data and can be applied to different tasks.

These models are more efficient than humans in many challenging tasks and are being used in real-world applications like autonomous vehicles and scientific research, but few methods exist for explaining AI decisions to humans, blocking the wide adoption of AI in fields that ultimately require human trust, such as science.

By creating algorithms that provide meaningful explanations for a model's decision-making, AI systems can be deployed with higher levels of human trust and understanding, the researchers say.

Rickard Ewetz, lead researcher of the project and an associate professor in UCF's Department of Electrical and Computer Engineering, says AI models need to be transparent in order to be trusted by humans.

"It's not just a black box that takes an input and gives an output. You need to be able to explain how the neural network reasons," Ewetz says.

Instead of examining model gradients, which are the emphasis of many explainable AI efforts over the last decade, the project focuses on providing meaningful explanations of AI models through innovations such as the implementation of symbolic reasoning to describe AI reasoning with trees, graphs, automata and equations.

The researchers aim to not only provide needed explanations for a model's decision-making but also estimate the model's explanation accuracy and knowledge limits.

Ewetz received his doctorate in electrical and computer engineering from Purdue University. His research focuses include AI and machine learning, emerging computing paradigms and future computing systems, and computer-aided design for very large-scale integration.

Wireless INNOVATION

NSF CAREER AWARDEE KENLE CHEN LEADS ADVANCEMENTS IN WIRELESS COMMUNICATION

By Mikita Nayee

The current radio spectrum, or the range of frequencies used for wireless communications, is quickly becoming congested due to rapidly increased user volume from humans and smart devices, as well as from new wireless technologies, such as Wi-Fi7, 5G+ and more.

Assistant Professor Kenle Chen is developing a first-of-its-kind technology that could alleviate this congestion and allow for more efficient and reliable communications.

In emerging communication systems, an essential device is a circulator that helps control the flow of signals by routing them between an antenna, transmitter and receiver. It can be found on base stations on Earth and on satellites in space.

Traditional circulators rely on "magnetic material," in which signals travel in one direction under the influence of a magnetic field.

Recently, microchip-based, nonmagnetic circulators have become possible, but their performance is far from their magnetic counterparts. For instance, state-of-the-art non-magnetic circulators can only handle watt-level of transmission power, which is far below the usable range of many realistic systems, Chen says.

Chen's non-magnetic approach delivers high-power performance in the order of 10 watts which is comparable to magnetic circulators and allow bidirectional signal flow at the antenna interface through a novel co-design of the antenna and the power amplifier. "It's a way to directionally route the transmission signal and the receive signal, so it's a bidirectional process, using a single unified antenna," Chen says. "It will enhance the efficiency of high-power amplifiers, the most energy-consuming unit on all wireless platforms."

Current magnetic circulators are quite expensive, large and heavy, leading to high manufacturing and installation costs for the system as well as increased maintenance requirements. Chen's technology will shrink the weight and size of the emerging radio system.

The advantages of Chen's disruptive technology have created interest from wireless and semiconductor industries. Chen says that when installing a current antenna array high onto a base station, oftentimes a helicopter or heavy lifting equipment is needed.

"If we can get rid of magnetic circulators, then we can very much minimize the size and weight of this antenna array," he says. "So, workers can just carry it on their back as they install it — saving the overall cost and improving labor efficiency and safety."

AMPED UP Partnership

COMPUTING PIONEER AMD PROVIDES ADDITIONAL STUDENT OPPORTUNITIES

High-performance computing giant AMD has expanded its partnership with the UCF Department of Electrical and Computer Engineering to offer an exciting new opportunity for its students: undergraduate and graduate research fellowships.

First introduced in Spring 2023 with two undergraduate fellowships, the program has grown to welcome a total of nine students in its next group: undergraduate students John Gierlach, Mariam Rabadi, Lana Perkins, Grace Tuomala, Michael Castiglia, Tyler Goldsmith, Francisco Soriano and Cory Brynds, along with doctoral student Sanjay Gandham, pictured below.

They will have the opportunity to work with AMD's Orlando office for the next 12 months, collaborating with AMD experts and UCF researchers to complement their theoretical in-class knowledge with the practical applications in industry.

Senior electrical engineering major John Gierlach, one of the two inaugural undergraduate fellowship recipients, completed his first internship through this program with AMD this past summer. He says he had the opportunity to interact with other senior engineers who taught him industry standards and how he can become a better engineer within the world of computer architecture.

"The most exciting thing to me was knowing that I was designing hardware that would be used in future generations of GPUs, which isn't something that most interns get to do from what I was told," Gierlach says. "The majority of the time I was debugging the hardware I designed, which was a huge shift of mindset of what I thought engineering was from the outside, but this is a standard within the industry."

Gierlach added that he was able to help with AMD products that serve as the brains behind several technologies used in future AMD gaming and AI systems.

Rex McCrary, AMD Fellow, GPU Subsystem Architecture and Orlando Design Center Site Lead, says AMD hopes to encourage and enable more undergraduates to engage with research professors, learn solid research strategies and help develop new technologies that will advance industry and company solutions.

"The talent pool of graduates from UCF's ECE program is solid, and as we collaborate at many different levels with a comprehensive strategy, we desire to assist and accelerate UCF's goal of a premiere teaching and research campus," McCrary says. "I'm incredibly excited about the growing relationship between AMD and UCF. "I think we will look back in just five years and say it was a game changer for both of us. In 10 years, it will be incredible."

SEMICONDUCTOR Synergy

DEPARTMENT PARTNERS WITH INTEL ON SEMICONDUCTOR WORKFORCE DEVELOPMENT INITIATIVE

Through a new collaboration with Intel, the UCF Department of Electrical and Computer Engineering is starting a new initiative to put a much-needed focus on semiconductor manufacturing. A proposal led by PI Reza Abdolvand was selected by Intel to receive a total of $450,000 in funding over a three-year period to prepare a diverse talent pipeline through new curriculum development and a possible degree program in semiconductor science and engineering.

This initiative also provides scholarships for one graduate student, Ankesh Todi, and several undergraduates: Gugulethu Sigogo, Melyia Ince-Ingram, Israel Charles, Alexander Miller and Labiba Ibrahim (pictured below). These students will assist in developing the program while receiving hands-on training on micro-fabrication tools and processing by assisting the cleanroom staff at UCF.

"We are thrilled to be working with Dr. Abdolvand and the entire team at UCF to help develop the next generation of semiconductor manufacturing technologists," says Chris Ross, senior technologist and director of higher education initiatives at Intel. "Our investment in UCF reflects our confidence in their ability to bring the semiconductor science engineering program to fruition and broaden the opportunity for more students to enter a field where they get to design and build some of the most advanced technology humans have ever created."

Abdolvand says he is grateful for Intel's trust in the initiative.

"This partnership will provide us with the means to attract top talent to this under-developed area of expertise hence enabling our industrial partners with direct access to a sustainable pipeline of well-prepared talent."

Teamed Up with TI

A new partnership with Texas Instruments is opening the door to new opportunities for a talented student.

Myesha Rahman has been selected as the inaugural recipient of the TI Fellowship. As the TI Fellow, Rahman will get hands-on experience in the UCF cleanroom, and build valuable skills that will benefit her in a future career.

Priya Bhasin, the university recruiting manager for TI, says UCF alumni are well-regarded within TI as problem solvers and leaders.

"We hope to strengthen interest among UCF students and equip them for potential engineering careers in our wafer fabs, where we anticipate growing opportunities as we expand our U.S.-based manufacturing footprint."

TOP TEN for Tech

ORLANDO RANKS NO. 9 FOR FASTEST-GROWING TECH HUBS

By Nicole Dudenhofer '17

There are plenty of reasons to live in Orlando, but for those working in the tech industry, The City Beautiful is one of the best places to be. Orlando ranks ninth for fastest-growing tech hubs by job growth in the U.S., according to Best Colleges.

Orlando's tech industry job growth is projected to be 26.8% — more than double the growth for computer and information technology jobs nationally by 2030, according to the Bureau of Labor Statistics. Best Colleges rankings considers an analysis of the BLS Quarterly Census of Employment and Wages and a 2022 report by 24/7 Wall St.

"Orlando offers resources for startups and tech professionals through its tech hub portal," Best Colleges stated in its rankings. "Professionals can find peer networking, professional development and other career opportunities. Startups can also recruit workers by posting jobs and showcasing innovation in the industry."

Annually, UCF produces a high volume of top talent to the tech field. In the 2022-23 academic year thus far, UCF has awarded more than 4,600 degrees in STEM fields to graduates.

STEM fields emphasize technology, innovation, problem-solving, and critical thinking and are in high demand by employers throughout Central Florida and the state. STEM workers, on average, earn higher salaries and can extend across various fields, including advanced manufacturing, aerospace, artificial intelligence, biomedical sciences, cybersecurity, engineering, game development and nursing.

Faculty lead highly regarded programs across tech-related fields at UCF, with computing being a strong focus. UCF ranks No. 57 for graduate computer engineering, No. 70 for computer science graduate programs and No. 86 for computer science undergraduate programs, according to *U.S. News and World Report.*

Rewarding Excellence

RESEARCH AND TEACHING INCENTIVE AWARDEES

Three faculty from the UCF Department of Electrical and Computer Engineering were awarded the university's Research Incentive Award (RIA) and Teaching Incentive Program (TIP) awards.

Professor Nazanin Rahnavard and Associate Professor Wei Sun were selected for the RIA award while Senior Lecturer Chung Yong Chan received the TIA award.

The RIA is awarded for oustanding research that contributes significantly to the faculty's field of expertise. It also recognizes work that supports UCF's goal of reaching global standing in research activities.

UCF's TIP recognizes excellence in teaching and productivity, higlighting faculty who contribute toward the university's continuing goal of offering top-notch undergraduate education, as well as achieving international prestige for its graduate programs.

Who Let the DOGS OUT?

A NEW EDUCATIONAL INITIATVE PUTS THE SPOTLIGHT ON ROBOTICS

Sit, beg, roll over, dance – students had fun with these and other commands during their first interactions with the UCF Department of Electrical and Computer Engineering's newest educational initiative, where they took a "paws" for some playtime with shiny new canine friends. Fifteen new robotic dogs were purchased over the summer as part of a long-term plan to expand the department's offerings in the area of robotics.

"The robotics industry is expected to grow significantly in the coming years and their application will significantly outgrow the current domain of manufacturing, says Department Chair Reza Abdolvand. "Some new areas in which robots will become ubiquitous are automated guided vehicles, autonomous mobile robots, drones, assistive humanoids, etc. Therefore, a new generation of engineers with expertise in robotics is going to be in high demand."

While their ability to play tricks like sitting and rolling over certainly makes the department's new pets endearing, their real power lies in their capacity to shape students' futures with valuable hands-on experience.

Equipped with an array of sensors, including those that can calculate force and depth, and outfitted with multiple fisheye cameras, the new four-footed educational tools have the capability to be programmed to interact with their surroundings. The dogs also have a sensory system with built-in AI capabilities that can detect humans, and can reach running speeds of up to 4.7 meters per second.

With these features, students can implement their own AI and machine learning algorithms giving them real-world interactions with autonomous systems.

"These robotic dogs are advanced enough to be used for unique high-level training that could prepare them for job opportunities that require more experience than what is typical in similar programs," says Abdolvand.

The new dogs are being used in the Intro to Robotics classes, held on the UCF campus, as well as for class projects in the Robotics Systems course. The department offers the Minor in Intelligent Robotics Systems as an introduction to the field, available to all majors but targeted toward electrical and computer engineering, computer science and mechanical engineering students.

Ron DeMara Receives Fellow Honors

Ronald DeMara, a Pegasus Professor in the UCF Department of Electrical and Computer Engineering, has been named a Fellow of the American Association for the Advancement of Science (AAAS). The title, one of the most distinguished honors in the scientific community, recognizes outstanding efforts to advance science and its applications.

DeMara was one of 505 selected in the U.S. by his peers in the AAAS for the prestigious honor. He, along with UCF faculty member Peter Delfyett, a Pegasus Professor in the College of Optics and Photonics and an affiliated member of the ECE faculty, were the only researchers selected from UCF this year.

"The opportunities provided by the department, college and university levels at UCF, from 1992 through my 30th year at UCF this past December, are support for which I'm deeply indebted," DeMara says. "Equally, I am indebted to my colleagues as collaborators and mentors."

DeMara has been a full-time faculty member since 1993. His research interests include computer architecture, post-CMOS devices and reconfigurable computing fabrics.

Raj Mittra Receives Radio Science Award

Raj Mittra, a courtesy professor in the UCF Department of Electrical and Computer Engineering, was awarded the Distinguished Radio Science Award by the U.S. National Committee for the International Union of Radio Science (USNI-URSI). The inaugural award is a prestigious honor that recognizes the overall impact of a researcher's career in the field of radio science.

Mittra says he is proud to have received the distinction, adding that it is the highest level of peer recognition one can receive in his field. He was the selection committee's unanimous choice for the award.

"I gratefully acknowledge the help and support I received from the ECE department, providing me with the infrastructure which enabled me to carry out my research," Mittra says. "I also thank my research students, postdocs and visiting scholars in my lab who toiled into the night, burning the midnight oil, so we could publish those research papers that led to recognition by the URSI awards committee."

Yaser Fallah Receives UCF Luminary Award

Six faculty members were lauded for being leaders and making impacts in their fields during UCF's annual Luminary Awards, including Yaser Fallah, associate professor in the UCF Department of Electrical and Computer Engineering.

The accolades recognize UCF's brightest stars who shine a positive light on UCF, as well as illuminate a path of discovery for those who will come after them. Fallah is an expert in the emerging field of connected and autonomous vehicles, a crucial part of intelligent transportation systems for the future. His work with the automotive industry contributed to the vehicle safety standards expected to be used in all new vehicles produced in the U.S. in the coming years.

He leads several projects sponsored by the automotive industry and has received federal grants to devlop autonomous vehicle technologies. In advancing knowledge about autonomous vehicles and cooperative artificial intelligence, Fallah has gained international recognition and media attention.

Department Alumni Honors

Industry leaders, entrepreneurs and scientists were honored for their career achievements at the college's 2022-2023 Distinguished Alumni Awards.

Three alumni from the UCF Department of Electrical and Computer Engineering were recognized: collegewide honoree Thomas J. Riordan '78 '79MS, and department honorees Osama "Sam" Abdel-Rahman '05MS '07PhD and Sam Richie '80 '83MS '89PhD.

Riordan is the CEO of Aril, Inc., which specializes in enhanced performance, power and security for computer processors. He is also a partner at the Orlando-based venture capital firm Deepwork Capital. His career includes working as a design engineer for Intel and in several research, development and executive roles for technology startups.

After graduating, Abdel-Rahman worked for Intel. He was also an adjunct professor at UCF. Today he is a system architect engineer for Infineon Technologies, one of the largest power semiconductor manufacturers in the world.

Richie has been a faculty member at UCF for more than 40 years. He has developed and enhanced course materials and laboratory experiments at the undergraduate and graduate level, and facilitated industrial and government agency involvement and support for the ECE Senior Design course.

GTA Excellence

RECOGNIZING SUPERLATIVE GRADUATE TEACHING ASSISTANTS

Three of the department's top graduate teaching assistants — computer engineering Ph.D. student Paul Amoruso and electrical engineering Ph.D. students Sahin Gullu and Arash Raftari — were honored for their excellent performance and dedication, voted upon by those who benefitted the most from their guidance: their students. Each honoree was recognized with a plaque, presented at this year's graduate student orientation, and given a $1,000 cash award.

One of the most rewarding aspects of my role is the profound sense of satisfaction I experience when I successfully explain a seemingly complex problem or concept, and I observe the students grasp and comprehend it with clarity and confidence.

—Paul Amoruso

I think that if you care about the students, they feel it. I think we can sense each other's intentions by our behavior and talk. What I have learned is that the way you speak is more important than the information you deliver.

—Sahin Gullu

Even though the end goal is to make the student happy after you taught them something, you actually become better at the particular thing you taught. In addition, helping to put smiles on other people's faces is the most rewarding aspect.

—Arash Raftari

Impactful Student Research

Fourth-year electrical engineering doctoral student Jennyfer Vivas Gomez received a first-place award during Student Research Week for her research presentation, titled "Ultrasonic Piezo-Transducer Integrated with Field Effect Piezo Transistor." She recently had the opportunity to present her work at the poster session of the joint conference of the IEEE International Frequency Control Symposium and the European Frequency and Time Forum held in Toyama, Japan.

Meaningful Mentoring

A Q&A with Nazanin Rahnavard, the University Awardee for Excellence in Mentoring Postdoctoral Scholars

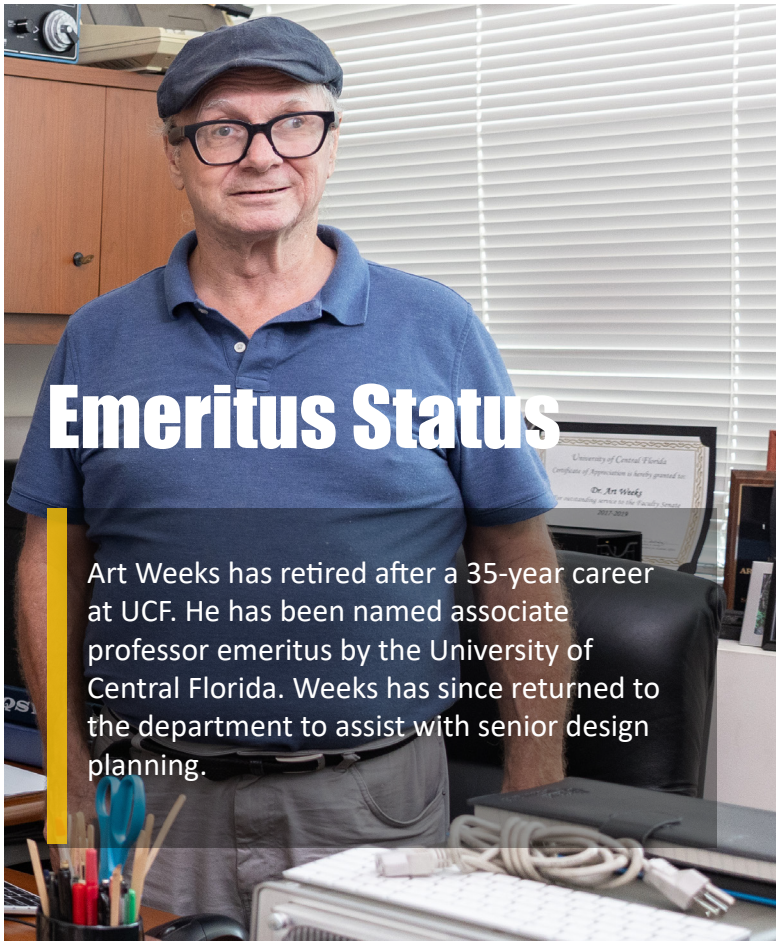
What is your role as a mentor for postdoctoral students?
While a very gratifying experience, mentoring a postdoctoral scholar comes with a huge responsibility. I recognize my role in shaping the future of my postdocs and I feel the urge and the passion to prepare them for an impactful and fulfilling career as future influential professors, researchers and leaders, who will push the boundaries of science and technology and touch the lives of many others.

What is your approach for guiding your students?
I do not believe in "one-size-fits-all" when it comes to interacting with other human beings, let alone mentoring postdocs with unique background, needs and goals. After identifying their career goals, their strengths and areas that could use improvement, I assign them the research tasks and tailored responsibilities that will enrich their knowledge, research, teaching and advising experiences that could take them to the next level within a few years.

What is the most gratifying aspect of serving as a mentor?
Mentoring postdocs is an honor and an opportunity to influence the lives of individuals who are close to the finish line but need a helping hand, encouragement and the right environment to gently push them through and move to the next stage of their career.

Cheers to 20 Years

Associate Professor Lei Wei is celebrating 20 years at the UCF Department of Electrical and Computer Engineering this year. Wei's research focuses on biologically inspired signal processing, modulation and error control coding, and wireless communications.



Emeritus Status

Art Weeks has retired after a 35-year career at UCF. He has been named associate professor emeritus by the University of Central Florida. Weeks has since returned to the department to assist with senior design planning.

The SWEet LIFE

MEET UCF SOCIETY OF WOMEN ENGINEERS PRESIDENT JORDAN THRELFALL

Engineering was a natural fit for Jordan Threlfall, a Florida native who has always had a passion for math and science. She says she chose computer engineering for its versatility.

"As we shift to a more digital age, computer engineering provides me with the skillset to work with these new technologies," Threlfall says.

Studying computer engineering at UCF definitely has its advantages for Threlfall, as she's able to apply her engineering knowledge to another of her passions, themed entertainment. In fact, one of the factors she considered in choosing to study at UCF was its close proximity to world-class theme parks.

That decision is paying off today, as she is gaining real-world experience as a technical intern at Universal Creative. Working on their Advanced Technology Interactives/Research and Development team, Threlfall works on developing advanced technologies for themed environments.

Though gaining real-world experience in the industry has been a highlight of her college career, her most meaningful experience as a Knight has been her involvement with the UCF Society of Women Engineers (SWE) section. Threlfall joined the chapter in 2020 as a freshman and knew instantly that she had found a home away from home.

"SWE offers so many things to its members. From professional development to social events to our yearly conference with the main organization, each of these things have positively contributed to my college experience and career preparation," she says.

As an SWE member, Threlfall was able to attend SWE national's WE22 conference in Houston, where she was able to network with several companies, such as Universal Creative.

One of Threlfall's goals as SWE president is to increase membership and overall involvement in the chapter, both of which had been affected over the past two years by COVID-19. Since the first meeting last year, she is thrilled to report that membership nearly tripled.

"We strive to continue providing opportunities to our members and ensure that they are supported as women and as engineers," she says.

Threlfall encourages her fellow future engineers to consider joining the chapter, as well as other registered student organizations.

"Get involved with your on-campus organizations. These groups work extremely hard to ensure that you have as many opportunities as possible. Doing this can lead to experiences that you would not get anywhere else."

Soaring to New HEIGHTS

ALEX GREEN RECEIVES DEPARTMENT OF DEFENSE SMART SCHOLARSHIP

Electrical and computer engineering student Alexander Green is soaring to new heights thanks to a coveted scholarship that gives him the opportunity to work for the U.S. Air Force.

Green, a computer engineering major, has been awarded the Science, Mathematics and Research for Transformation (SMART) Scholarship. The competitive scholarship-for-service program, funded by the Department of Defense, includes full tuition, annual stipends, internships and guaranteed employment following graduation.

"I feel incredibly grateful and honored to have been chosen for this program," he says. "This scholarship serves as a motivation for me to continue striving for excellence in my studies."

Green is interning for the U.S. Air Force this summer at Robins Air Force Base, honing his skills in software development and systems engineering by working for the 402nd Software Engineering Group. He begins his internship with SMART next May at the same base, supporting radar-guided weapons system AMRAAM, or Advanced Medium Range Air to Air Missile. As part of the program, he'll also have the opportunity to work alongside military personnel that will serve as his mentors: Ryan Long, Air Dominance Chief, and Tristan Caruso, AMRAAM Production Engineering Branch Chief.

He's especially excited to be working for the U.S. Air Force as a civil service engineer to gain hands-on experience with cutting edge technology while working to help support the nation's defense.

"My goal is to make significant contributions by leveraging these skills and knowledge to refine and improve the system's producibility, reliability and capabilities," Green says.

Long before his career was poised to take flight, Green was drawn to programming thanks to a Python coding book, a gift from his parents. His passion for coding, along with his interest in math and science, was a natural fit for computer engineering.

He chose to attend UCF for its reputation for being one of the top engineering institutions.

"I love the exceptional facilities and the community at UCF," Green says. "I am confident I will receive an unparalleled education here. Its faculty of outstanding educators are some of the most desirable on the planet."

The DoD SMART Program has awarded scholarships to a total of 40 UCF students from 2007 to 2022. Interested undergraduate, master's and doctoral students pursuing a STEM degree can apply at smartscholarship.org. The application period is from August to December.

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