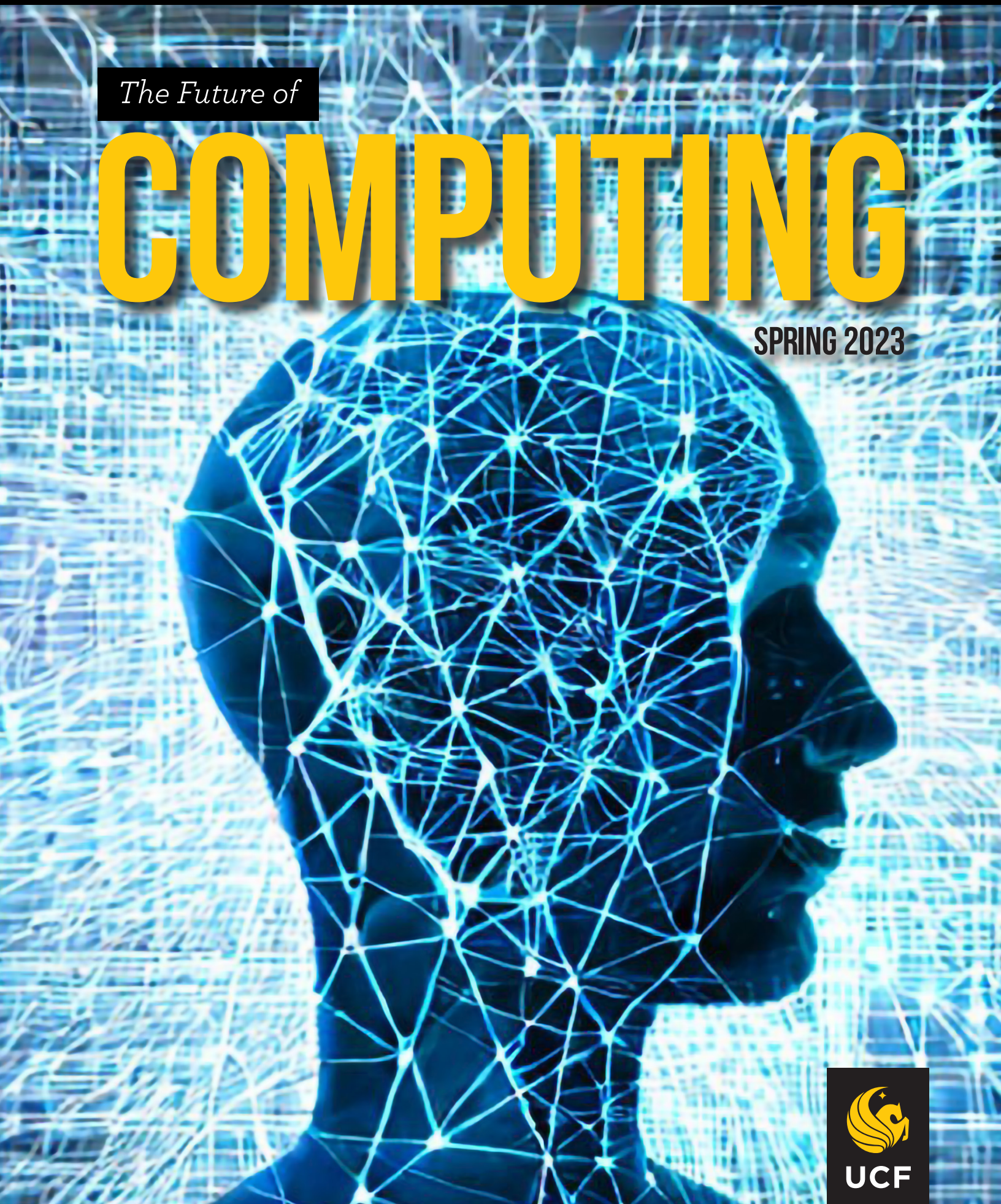
UCF DEPARTMENT OF COMPUTER SCIENCE

The Future of

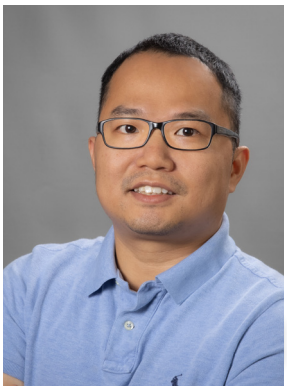
COMPUTING

SPRING 2023



UCF

TABLE OF CONTENTS



The Future of
COMPUTING
SPRING 2023

The Future of Computing is a publication of the University of Central Florida Department of Computer Science that showcases the accomplishments and accolades of its students, faculty and alumni.

UCF COLLEGE OF ENGINEERING AND COMPUTER SCIENCE DEAN
Michael Georgiopoulos, Ph.D

DEPARTMENT CHAIR
Damla Turgut, Ph.D.

PUBLICITY CHAIR
Ryan McMahan, Ph.D.

COMMUNICATIONS COORDINATOR
Bel Huston

UCF DEPARTMENT OF COMPUTER SCIENCE
4328 Scorpius St.
Orlando, Florida 32816-2362
cs.ucf.edu

CONNECT WITH US ON SOCIAL

UCF | Department of Computer Science
UNIVERSITY OF CENTRAL FLORIDA

PARTNERSHIP SCIENCE
A MESSAGE FROM THE CHAIR

Computer science is the engine that drives many of the achievements of our current world. It gave us the internet, smartphones, efficient manufacturing and creative finance. It allows us to approach and sometimes exceed the capabilities of the human vision system, drive AR/VR experiences, answer queries in natural language, and generate workmanlike artwork. In the near future, it will help drive cars and assist the disabled and the elderly. Some researchers argue that the whole universe is computational!

But computer science is also a great applied, and should I say, "partnership science," amplifying the capabilities of other engineering disciplines and sciences. At the same time, computer science presents new challenges for humanity, both when it comes up short in its promises, but also when its unchecked powers can lead to unintended consequences. There are legitimate concerns that computational devices might replace jobs faster than the creation of new jobs for humans. Another danger is that we might inadvertently extend our biases and prejudices into the computational world, either by design mistakes, biased training data, or AI objectives that are not aligned with the interest of the society. And of course, the cyber world created by the computational agents is vulnerable to the activities of cybercriminals and is a setting where the competition between powers, state actors and economic interests plays out.

I strongly believe that there is no other science that is so foundational to the success of humanity, where a student can make so much positive difference as computer science.

The UCF Department of Computer Science is at the forefront of many of the current challenges. Our department offers undergraduate degrees in computer science and information technology. Our students receive an excellent education that allows them to compete with the best universities in the nation. For instance, our programming team has advanced to the World Finals of the International Collegiate Programming Contest almost every year since it first started in 1982, placing second in the 1987 competition, and competes well each year against the best teams from across the globe. As another example, our Collegiate Cyber Defense Competition team has won first and second place in Collegiate Cyber Defense Championship almost every year since 2014, winning a number of other cyber competitions.

Our department offers master's degrees in computer science and, for students who aim to specialize their graduate education to a specific area and career path, we also offer master's degrees in computer vision, cyber security and privacy, and digital forensics. Our department is also involved in interdisciplinary master's programs in data analytics and financial technology.

Finally, the faculty and students of our department perform research in many areas of computer science from theoretical advances to translational research. Our doctoral program is the oldest computer science Ph.D. program in Florida, as well as the first doctoral program at UCF. Faculty include members of the National Academy of Sciences, Fellows of IEEE and ACM. Students regularly publish in the top venues of their respective fields and they are sought after by research institutes, universities and industry research labs.

Please feel free to browse our web page at cs.ucf.edu for more information about our academic and research programs. We hope that whatever your computation related career plans are, you will find the UCF Department of Computer Science a wonderful place to be!

DAMLA TURGUT, PH.D.
CHAIR
UCF DEPARTMENT OF COMPUTER SCIENCE

NEW FACULTY

WELCOME TO THE UCF CS FAMILY.
GO KNIGHTS! CHARGE ON!

JONGOUK CHOI

PH.D: PURDUE UNIVERESITY
RESEARCH AREAS:
COMPUTER ARCHITECTURE, COMPILERS, SYSTEMS, SECURITY, RELIABILITY

QIAN LOU

PH.D: INDIANA UNIVERESITY BLOOMINGTON
RESEARCH AREAS:
MACHINE LEARNING AND DATA PRIVACY/ SECURITY, ADVANCING AI CAPABILITIES

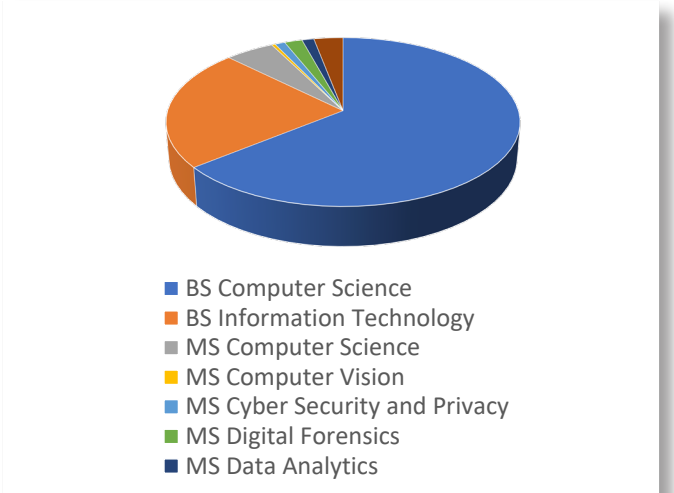
XUEQIANG WANG

PH.D: INDIANA UNIVERSITY BLOOMINGTON
RESEARCH AREAS:
SOFTWARE SUPPLY CHAIN SECURITY, CYBERCRIME, MOBILE/IOT SECURITY

BY THE NUMBERS

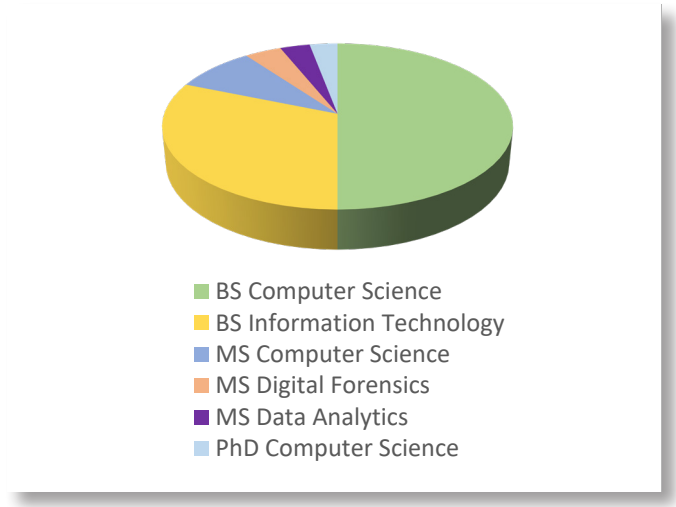
THE DEPARTMENT HAS SEEN A 44% INCREASE IN THE NUMBER OF ENROLLEES OVER THE LAST FOUR YEARS

FALL 2022 ENROLLEES: 5,330



2021-2022 GRADUATES: 942

SUMMER 2021, FALL 2021, AND SPRING 2022



ALUMNI HONORS

UCF DEPARTMENT OF COMPUTER SCIENCE ALUMNI HONORED FOR CAREER ACHIEVEMENTS

BY KIMBERLY J. LEWIS

Industry leaders, entrepreneurs, scientists — and a retired NASA astronaut-turned-artist — were honored for their career achievements in industries as diverse as construction and semiconductors at this year's College of Engineering and Computer Science Alumni Honors Awards. The honorees accepted their awards at the Dr. Phillips Center for the Performing Arts in downtown Orlando in front of a sold-out room of faculty, friends, family and staff.


OMAR JAVED '05PHD

Two alumni from the UCF Department of Computer Science were honored: Omar Javed '05PhD and Steve Leonard '04.


STEVE LEONARD '04

Javed is a vice president of applied science at Twitch, a subsidiary of Amazon. He founded and leads the Personalization-ML organization at Twitch, which works on recommendation systems, content relevance and retrieval, and machine learning infrastructure.

He says he was humbled and elated to receive the award. "The experiences at UCF turned me into the professional I am today," Javed says. "I'm proud to be a UCF Knight and I always try to live up to the values that my experiences at UCF instilled in me."

The department's second honoree, Leonard, is a Fellow for Northrop Grumman Corporation, serving as a business area chief engineer in the Mission Systems Sector. His expertise includes architecting, designing, developing and facilitating innovative large-scale software products that address customer business questions and needs.

"I'm very honored to be receiving this award," Leonard says. "UCF set me up for the challenges I'm facing, both in my professional life and my personal life, and I'm just very humbled."

SMART STREETSCAPES

UCF-LED RESEARCH TEAM TO PLAY KEY ROLE IN NATIONAL $26M NSF-FUNDED EFFORT TO DEVELOP SMART STREETSCAPES

BY KIMBERLY J. LEWIS


MUBARAK SHAH PH.D.

A team of researchers led by UCF Trustee Chair Professor Mubarak Shah, professor of computer science in the UCF Center for Research in Computer Vision, will play a key role in a newly funded national effort to forge livable, safe and inclusive communities with technologies built on advances in wireless communications.

This month the U.S. National Science Foundation announced its five-year award of $26 million to fund a new Gen-4 NSF Engineering Research Center for Smart Streetscapes (CS3).

CS3 is spearheaded by Columbia Engineering in partnership with the University of Central Florida, Florida Atlantic University, Rutgers University and Lehman College.

The grant, which supports high-risk, high-payoff research centers focused on advancing engineered systems technology and education with high-societal impact, will fund the development of streetscape applications to forge livable, safe and inclusive communities.

More than 80% of Americans and more than half the world's population live in urban areas. High-density cities are transforming how people live, work, travel and manage urban infrastructure. With the nation's urban areas facing challenges that threaten livability, safety and inclusion, it is streetscapes — neighborhood streets, sidewalks and public spaces — that are the center of public and commercial activities, where data can be harnessed for the public good.

Understanding complex streetscapes in real time requires progress in fundamental engineering knowledge and enables exciting opportunities for deploying public interest technology: a smart streetscape of the future can instantly sense human behavior and guide disabled pedestrians, collect refuse, control pests, amplify emergency services, and protect people against environmental and health threats. It can address unmet needs in road and public safety, traffic efficiency, assistive technologies, outdoor work and hyper-local environmental sensing.

The UCF-led team will address CS3's situational awareness research thrust — a critical piece of the smart streetscape puzzle — to develop computationally efficient and privacy-preserving computer vision and machine-learning algorithms to understand in real-time highly complex streetscape scenes, such as positions of people and things, context, people and objects in motion, and more, at scale with multiple cameras and fusion with other sensor types such as lidar.

The situational awareness team, led by Shah, director of the UCF Center for Research in Computer Vision and expert in advanced computer vision technologies, includes Mohamed Abdel-Aty, chair of the UCF Department of Civil, Environmental and Construction Engineering and expert in transportation safety and related technologies. Aty leads UCF's Future City initiative that provides research and educational opportunities in smart city technologies. The team also includes seven researchers from Columbia University and Rutgers University with research expertise in civil engineering, computer science, electrical engineering and statistics.

"Building upon many years of research collaboration between UCF and Columbia University, we are pleased to be the part of this NSF Engineering Research Center, where we will leverage our world class research in Computer Vision to solve real-world problems related to smart, secure and private cities," Shah says.

STRATEGIC INVESTMENT PROGRAM: ARTIFICIAL INTELLIGENCE

UCF AWARDS $4 MILLION TO THE CENTER FOR RESEARCH IN COMPUTER VISION TO ADVANCE AI INITIATIVES

Artificial Intelligence (AI) is transforming the world and everyday lives — from facial recognition on phones to smart home devices to security measures implemented for online banking. By some estimates, the global artificial intelligence market will grow sixteenfold from 2020 to 2028, reaching nearly $1 trillion.

UCF seeks to be a leading AI research and workforce provider in offering a top-quality education in this field for undergraduate and graduate students, awarding $1 million in recurring matching funds, in addition to $3 million in non-recurring funds. An interdisciplinary team led by Mubarak Shah, professor of Computer Science and the founding director of the Center for Research in Computer Vision, will pursue groundbreaking technologies to benefit society and strengthen AI research, security and commercialization in Orlando.

The team includes experts from engineering, medicine, business and sciences. It will leverage strengths in AI and computer vision to expand into other core areas, such as robotics, natural language processing, speech recognition and machine learning, and applications. Among the goals are to conduct research to advance future AI industries and to bring together a diverse range of practitioners who will help prepare Florida for the momentous societal challenges and opportunities associated with AI.

DIGITAL TWIN

U.S. DEPARTMENT OF COMMERCE AWARDS UCF $8.8 MILLION FOR ITS DIGITAL TWIN INITIATIVE

BY NICOLE DUDENHOFER '17


CAROLINA CRUZ-NEIRA PH.D.

UCF is part of a local collaboration selected to receive a major national investment in semiconductor research, design and manufacturing in the Central Florida region.

The funding is from the U.S. Department of Commerce's Economic Development Administration through its Build Back Better Regional Challenge.

Osceola County — in partnership with UCF, Orlando Economic Partnership, BRIDG, the Florida High Tech Corridor and SkyWater Technology — is one of 21 awardees selected out of 529 applicants to receive the funding and the only Florida awardee. The total award amount is $50.8 million with UCF receiving $8.8 million for its project, Digital Twin.

Digital twin encompasses digital replications of any real-world objects or systems — such as the human heart — that can be altered to understand impacts on an original item. Digital twins could be scaled to entail entire cities or large transportation or health care systems with constantly updated data and conditions, allowing designers, builders and architects to test and prove their ideas and concepts before production.

The investment will expand the semiconductor manufacturing potential of NeoCity, a 5-acre technology district in Kissimmee. It will establish a hub for semiconductor reshoring, benefitting aerospace, engineering, healthcare and other industries nationally. UCF is already a national leader in modeling and simulation research and education.

"With this grant we will have the opportunity to leverage the expertise of outstanding faculty to expand our novel digital-twin technology to train the next generation of innovators with the skills necessary to fuel the growth of NeoCity and central Florida's economy," says UCF President Alexander N. Cartwright.

UCF's Microelectronic Design and Production Digital Twin project will be completed through collaboration between UCF's School of Modeling, Simulation and Training (SMST) and the College of Engineering and Computer Science. SMST Director Grace Bochenek '98PhD will provide strategic guidance on the project. She will lead the effort with one of UCF's accomplished simulation experts, Agere Chair Professor of Computer Science Carolina Cruz-Neira, a VR pioneer and SMST affiliate faculty member.

With an investment in new modeling and simulation equipment, UCF will develop a digital twin of NeoCity's Center for NeoVation, which is a world-class sensor and research development city for academic and commercial use.

Through the Center for NeoVation's digital twin, UCF will replicate its production line, increasing microchip reliability and productivity, lowering maintenance costs, reducing risk, creating new business, improving supply and delivery chain efficiency, and enabling cross-discipline collaboration to foster innovation. UCF's participation in this project expands its efforts to be at the forefront of the cutting-edge field of digital twin, which the university committed a separate research initiative to earlier this year. Learn more about UCF's commitment on the next page.

STRATEGIC INVESTMENT PROGRAM: DIGITAL TWIN

UCF AWARDS MORE THAN $3.5 MILLION TO ADVANCE DIGITAL TWINS

As the U.S. aspires to become more innovative and competitive economically, modeling and simulation provide an outstanding way to explore and improve concepts before spending money and time to physically build them. Digitally replicating real-world objects or systems – such as the human heart – to help train doctors or aircraft to help train pilots – offers profound benefits for improving our health, safety and quality of life.

UCF recently awarded $1 million in recurring funds, in addition to $2.5 million in non-recurring fund, from its Academic Excellence Fund, which strategically invests in big ideas and institutional strengths to advance UCF's impact in becoming the world's leading public metropolitan research university.

Digital twins could be scaled to entail entire cities or large transportation or health care systems with constantly updated data and conditions, allowing designers, builders and architects to test and prove their ideas and concepts before production. Based in the Central Florida Research Park, the heart of Florida's modeling and simulation hub, a team led by Grace Bochenek, director of the School of Modeling, Simulation and Training, is uniquely positioned to develop a digital twin framework and enabling tools that governments, industry and academia can customize for their needs. Areas of focus will include digital twin applications and tools in behavioral healthcare, smart cities, transportation and defense.

The team includes experts from engineering and computer science, psychology, arts and humanities and strategic community partners.

Overall goals include:

- Helping UCF lead the U.S. in developing strategically critical digital twin technology
- Developing ground rules, protocols, technologies and tools for these new, meta-digital twins
- Creating a platform with opportunities for large-scale transformative ventures in partnership with industry and government, as well as the ability to attract larger grants and contracts
- Pursuing the development of multi-disciplinary academic digital twin programs and certificates at the graduate and undergraduate levels to educate the workforce that will be needed in the new digital-twin economy
- Optimizing the role of higher education in this emerging innovation landscape to help keep America competitive in key strategic areas of interest

CYBER POWERHOUSE

NSF AWARDS UCF $2.9 MILLION TO TRAIN THE NEXT GENERATION OF CYBER DEFENDERS

BY ROBERT WELLS

The University of Central Florida has been awarded a nearly $2.9 million grant from the U.S. National Science Foundation to provide cybersecurity scholarships to undergraduate and graduate students.

Scholarship recipients will focus on cybersecurity training and research at UCF, and after graduation, must work for a federal, state, local or tribal government organization in a position related to cybersecurity for a period equal to the length of the scholarship.

The award comes at a time when cyber threats are becoming more prevalent, from stolen customer information to the hacking of government data and more recently, breaching the security of a Florida water plant.

"UCF has tremendous strengths in cybersecurity education and research, with growing recognition thanks to the excellence of our students and faculty, initiatives championed by UCF Board Chair Beverly Seay, and awards like this grant," says UCF President Alexander N. Cartwright. "We are so proud to be able to continue to help our students graduate with the critical skills and knowledge needed by employers and our nation to help safeguard against growing digital threats."


YAN SOLIHIN PH.D.

UCF is a powerhouse for cyber defense programs and is designated as a National Center of Academic Excellence in Cyber Defense Education and a National Center of Academic Excellence in Cyber Defense Research.

The five-year grant is through NSF's CyberCorps: Scholarship for Service program, and the first scholarships will be awarded starting with the Fall 2021 cohort. A total of 22 undergraduate and graduate, both master's and doctoral, students will be awarded scholarships over the next five years. More details will be shared with the community as the program is finalized.

The NSF grants were awarded to six universities nationwide, including UCF. The six will join NSF's 78 current CyberCorps Scholarship for Service universities.

"This award shows the national recognition of UCF and the quality and breadth of the UCF cybersecurity program," says Yan Solihin, director of UCF's Cyber Security and Privacy Cluster and professor in UCF's Department of Computer Science. Solihin is a co-investigator on the award with Cliff Zou, an associate professor in UCF's Department of Computer Science and the award's principal investigator.


CLIFF ZOU PH.D.

"The opportunity to cultivate their learning and research in cybersecurity, privacy and digital forensics will attract even more high-quality students into our UCF program," says Zou.

UCF's Cyber Security and Privacy Cluster includes eight faculty members collectively advising one postdoctoral researcher, 45 doctoral students, four master's students and 17 undergraduate students. In the past two years, the cluster has raised more than $10 million in external grants to support its research and education activities, both from government funding agencies as well as from industry partners, such as Intel and Sophos. UCF also is home to the Lockheed Martin Cyber Innovation Lab.

AMPLIFIED IMPACT

UCF AWARDS 17 RESEARCH TEAMS NEARLY $5 MILLION IN JUMP START AWARDS

The Jump Start Fund is one of three funds UCF President Alexander N. Cartwright made available as part of his investment program to help position UCF as the world's leading public metropolitan research university. The program will award up to $50 million to projects proposed by faculty and staff that can elevate UCF's academic excellence, student success and impact. Professor David Mohaisen and Associate Professor Paul Gazillo received funding from the new iniative for their work outlined below.

ONLINE MASTER OF SCIENCE IN CYBERSECURITY AND PRIVACY AT THE UNIVERSITY OF CENTRAL FLORIDA

Already a leader in cyber security and privacy research and education, this project will launch a new online master's in cybersecurity and privacy at UCF to meet the exceedingly growing demands. The main goal of this proposal is to aid in the development of high-quality online course content that would not be possible with the currently available resources. With the rise in need for cybersecurity experts, this program is expected to deliver workforce-ready graduates that will not only work in this field, but also lead it.

PI: David Mohaisen
Funding awarded: $140,000, with $35,000 match


DAVID MOHAISEN PH.D.

ADVANCING INTERDISCIPLINARY CYBER SECURITY AND PRIVACY RESEARCH

Attacks on water treatment plants, the national pipeline and government and private businesses are increasingly common today, posing a threat to individuals and to national security. UCF has the expertise to tackle these threats with faculty in various colleges and within the Cyber Security and Privacy cluster. UCF is also home to award-winning student teams focused on keeping our networks safe. But to truly innovate solutions to the constantly emerging threats, UCF needs a new kind of physical space. The award money will be used to renovate an existing computer lab into a first-of-its-kind space at UCF that will support the interdisciplinary approach needed for advanced solutions. The lab will include a sensory suite for comprehensive and real-time human state estimation, which will include eye-tracking, physiological monitoring, and other biometric devices needed for cognitive and behavioral research; cyber-analytics hardware and software platforms, used by cyber-security practitioners and for training cyber-defense professionals; and computational resources for data analytics and real-time data collection from the sensory measurement equipment and cyber-defense platforms.


PAUL GAZZILLO PH.D.

The outcome is expected to translate into more research funding for UCF, a better prepared workforce and holistic solutions for problems that could potentially cripple our national economy and security.

PI: Paul Gazillo
Funding awarded: $100,000, with $50,000 match

ELITE INNOVATOR

UCF PROFESSOR GREG WELCH SELECTED AS FELLOW FOR NATIONAL ACADEMY OF INVENTORS AND IEEE

BY ZENAIDA GONZALEZ KOTALA

Gregory Welch is the AdventHealth Endowed Chair in Healthcare Simulation in UCF's College of Nursing. The computer scientist and engineer is also the co-director of the UCF Synthetic Reality Laboratory. He was one of 164 national faculty members, only 10 from Florida, honored at the National Academy of Inventors national conference in Phoenix, AZ.

The NAI Fellows Program recognizes academic inventors who have demonstrated a spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on the quality of life, economic development and the welfare of society. Election to NAI Fellow is the highest professional distinction accorded solely to academic inventors, according to the NAI.

Welch was also honored as a 2022 Fellow by the Institute of Electrical and Electronics Engineers (IEEE), a prestigious national distinction. The IEEE announced its new cohort of 311 fellows earlier this month.

Welch, a Chicago native, holds additional faculty appointments in UCF's College of Engineering and Computer Science and in the UCF Institute for Simulation and Training within the School of Modeling, Simulation and Training. He is the university's 17th NAI fellow. His work has resulted in 18 ideas or products that have eventually been granted patents — including 10 at UCF, which the Technology Transfer Office is working to license to companies. The key to innovation is collaboration, time to think and finding solutions to real problems, he recently said.

Welch has a vast range of experience from working at NASA's Jet Propulsion Lab on the Voyager project to serving as a research professor at University of North Carolina Chapel Hill for many years before joining UCF in 2011.

The past two years have been exceptionally accomplished ones for Welch. In 2020, he was named a Pegasus Professor — the highest honor bestowed to faculty at the university. Last month he also earned recognition at the TechConnect World Conference.

A TRUE VISIONARY

MUBARK SHAH NAMED ACM FELLOW

BY BEL HUSTON

The Association for Computing Machinery (ACM) has named Professor Mubarak Shah a Fellow for his significant contributions to human action recognition in video and for his leadership in promoting the undergraduate research experience.

Only 1% of ACM members hold this prestigious distinction, a peer-nominated honor that recognizes outstanding accomplishments in computing and information technology.

Shah is a world-renowned pioneer of automated video analysis. His novel methods for detecting and tracking human behavior in videos were used in the first-ever fully automated, multiple-camera video surveillance and monitoring system at the Orlando Police Department.

He and his team introduced groundbreaking work in visual crowd analysis, using algorithms that can count hundreds of thousands of people in a crowd in minutes, predict crowd behavior and track individuals in a crowd. This technology was used to count demonstrators calling for the independence of Catalonia from Spain in 2015 and 2016, and licensed by Saudi Arabian officials to monitor crowds during the annual Hajj pilgrimage to Mecca.

Shah is a UCF Trustee Chair Professor and founding director of the Center for Research in Computer Vision. He established the computer vision program at UCF and serves as project director for the National Science Foundation-funded Research Experience for Undergraduates in Computer Vision, the nation's longest-running REU. He was honored as a Pegasus Professor in 2006, the highest award given at UCF.

REACHING FOR THE STARS

YANJIE FU AWARDED UCF'S EARLY-CAREER PROFESSIONAL AWARD

BY ROBERT WELLS

UCF has awarded assistant professor Yanjie Fu its Reach for the Stars award, which recognizes early-career professionals with highly successful research and creative activity with a national or international impact.

Fu focuses his research on artificial intelligence, developing robust machine intelligence that can withstand disruptions such as imperfect or complex data.

"AI systems, unlike humans, are brittle, not robust, and often struggle when faced with novel situations," Fu says. "Therefore, in a real world, open, dynamic and uncertain environment, it is critical to develop robust AI systems."

Fu's impact has extended to both his field and his students. His two graduated doctoral students have joined academia as tenure-track faculty members, and he has received the NSF CAREER award, as well as best paper awards in leading conferences in his field.

He said the abilities of AI are changing, and it is an exciting field for innovation and discovery.

"In the past, AI techniques have been used to address specific tasks," he says. "The recent advances of ChatGPT show that it is promising to develop strong, generic, and human-like intelligent systems to perform tasks that humans accomplish. This is an exciting direction."

Fu says he chose to work at UCF because it is a dynamic, vibrant, and research-intensive university.

"UCF is highly regarded in engineering and computer science education and research," he says. "I have great opportunities to work with world-class researchers and model faculty members, so I can observe, interact with, imitate, and learn from my colleagues, and moreover, improve myself."

PATHWAYS TO COMPUTING

NSF AWARDS $5 MILLION TO UCF, FIU AND USF TO RECRUIT AND RETAIN COMPUTING STUDENTS

The National Science Foundation has awarded $5 million to the Consortium of Metropolitan Research Universities – the University of Central Florida, University of South Florida and Florida International University – to fund the Florida IT Graduation Attainment Pathways Program (FlitGAP). Flit-GAP awards scholarships to juniors in computing disciplines at UCF, USF and FIU to help ensure their graduation and encourages them to pursue graduate studies.

A collaborative effort, the three universities have a shared goal of supporting the growth of Florida's tech ecosystem by recruiting, retaining and guiding dedicated scholars through graduation and supporting them in finding professional pathways into a career in tech. The program offers a hybrid physical and virtual learning community that spans the three institutions, giving students the opportunity to engage in unique virtual collaborations, including workshops and networking events with Florida's three largest employer markets.

The program also provides students with a unique opportunity to pursue their career interests by rotating through internship, research or entrepreneurial opportunities in tech. Project activities include tutoring for foundation courses, specialized academic advising, and mentoring from faculty, industry professionals and their peers. Flit-GAP's unique features of a hybrid learning community across all participating institutions, expansive pathway experiences of its scholars (leveraging institutional collaborations) and extensive evidence-based support practices are expected to increase retention and graduation percentages by 10%.

The project will recruit an average of 50 eligible junior students in each of years one, two and three of the grant. Flit-GAP will impact 150 scholars from the computing disciplines, most of whom are underrepresented in computing.

TOP TECH TALENT

UCF RECOGNIZED AS A TOP TALENT PRODUCER FOR MAJOR TECH COMPANIES

BY ANTHONY M. MOORE

UCF is the No. 2 university in Florida for producing highly skilled employees for some of the world's most prominent technology companies, according to a new survey from TonerGiant.

Approximately 2,500 UCF alumni have worked for such innovation leaders as Amazon, Apple, Google, IBM and Oracle. Of the 26 companies included in the survey, Amazon has been the leading employer for UCF alumni. More than 730 UCF graduates have worked at Amazon.

Among Florida universities, UCF is the leading producer of talent for both Uber and YouTube, and the second-leading producer for Amazon, Apple, Google, Accenture and Oracle.

UCF has long been viewed as a top supplier of highly skilled talent for leading companies and organizations across the globe. The university has previously been ranked the No. 1 supplier of graduates to the aerospace and defense industries by Aviation Week. Last year, UCF ranked 25th among American public universities for producing patents and 60th in the world. Additionally, *U.S. News & World Report* ranked UCF the No. 15 Most Innovative University in the nation.

The TonerGiant survey ranked Florida No. 8 in the nation for producing tech talent. In total, more than 15,000 graduates from Florida universities have worked within the surveyed tech companies. Nearly 3,000 Florida alumni have worked within Amazon. Apple and Google follow with roughly 1,500 and 1,400 Florida grads, respectively.

The TonerGiant survey used LinkedIn data as well as personal polling to gather graduation information from more than 500,000 individuals. The analysis includes more than 200 public and private institutions within the U.S. as well as 150 colleges and universities in the United Kingdom.

TOP 10 SURVEYED TECH GIANTS EMPLOYING UCF GRADUATES

- AMAZON
- APPLE
- GOOGLE
- ORACLE
- ACCENTURE
- IBM
- INTEL
- UBER
- CISCO
- YOUTUBE

FIVE-TIME CHAMPIONS

UCF WINS THE 2022 NATIONAL COLLEGIATE CYBER DEFENSE COMPETITION

BY ROBERT STEPHENS

A team of UCF students has again proved that the university is the nation's premier institution for cyber security talent, as they won the 2022 National Collegiate Cyber Defense Competition. The university has now claimed five national titles in the last 10 years, more than any other university in the nation. UCF has either won first place – in 2022, 2021, 2016, 2015 and 2014 – or first runner up – in 2020, 2019 and 2018 – eight times in the last decade.

"I hope everyone in the Orlando area understands that what our students have accomplished over the years is remarkable," says Tom Nedorost, the team's coach and faculty advisor, who notes that UCF's eight-member team practices up to 15 hours a week and is nationally respected as an elite program in the lucrative field of cyber security. "To win it as often as we've won it says a lot about the talent pool at UCF and the passion of our students for this."

The competition for the national title began earlier this year when nearly 250 collegiate cyber defense teams took part in regional championships. UCF won and represented the South Eastern Region. The ten regional champions competed in the national championship held in San Antonio, Texas.

During the two-day event, teams were challenged with the real-world scenario of managing information technology operations for a major organization. This year, it was a video game supply company. A professional group of hackers – from established industry entities – persistently attacked the company's various networks to cause disruption. As they defended the company from hackers, the teams also completed a slew of incominbusiness requests.

Competitions like these give students real-world training in safeguarding the nation's critical infrastructure from cyberattacks, which are growing more frequent, damaging and costly. To help meet the demand for cyber security professionals, now and in the future, UCF launched a new master's degree in cyber security and privacy last year.

> "I HOPE EVERYONE IN THE ORLANDO AREA UNDERSTANDS THAT WHAT OUR STUDENTS HAVE ACCOMPLISHED OVER THE YEARS IS REMARKABLE. TO WIN IT AS OFTEN AS WE'VE WON IT SAYS A LOT ABOUT THE TALENT POOL AT UCF AND THE PASSION OF OUR STUDENTS FOR THIS."
>
> --TOM NEDOROST, TEAM COACH AND FACULTY ADVISOR

BUILDING A LEGACY

UCF ADVANCES TO INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST WORLD FINALS FOR 11TH CONSECUTIVE YEAR

BY MARK SCHLUEB '93 '21MA

UCF computer programming students were among the winners of the prestigious North America Championship round of the 2022 International Collegiate Programming Contest (ICPC) at the University of Central Florida, beating dozens of the top teams on the continent to take seventh place and advance to the World Finals.

This is the 11th consecutive year a UCF team has qualified for the World Finals.

UCF hosted the event and competed against 49 other elite three-person teams of student programmers from institutions across the U.S. and Canada. Facing off in an intense battle of the brains, the contest pitted teams of three university students against 13 complex, real-world problems, with a grueling five-hour deadline. Huddled around a single computer, competitors raced against the clock in a battle of logic, strategy and mental endurance.

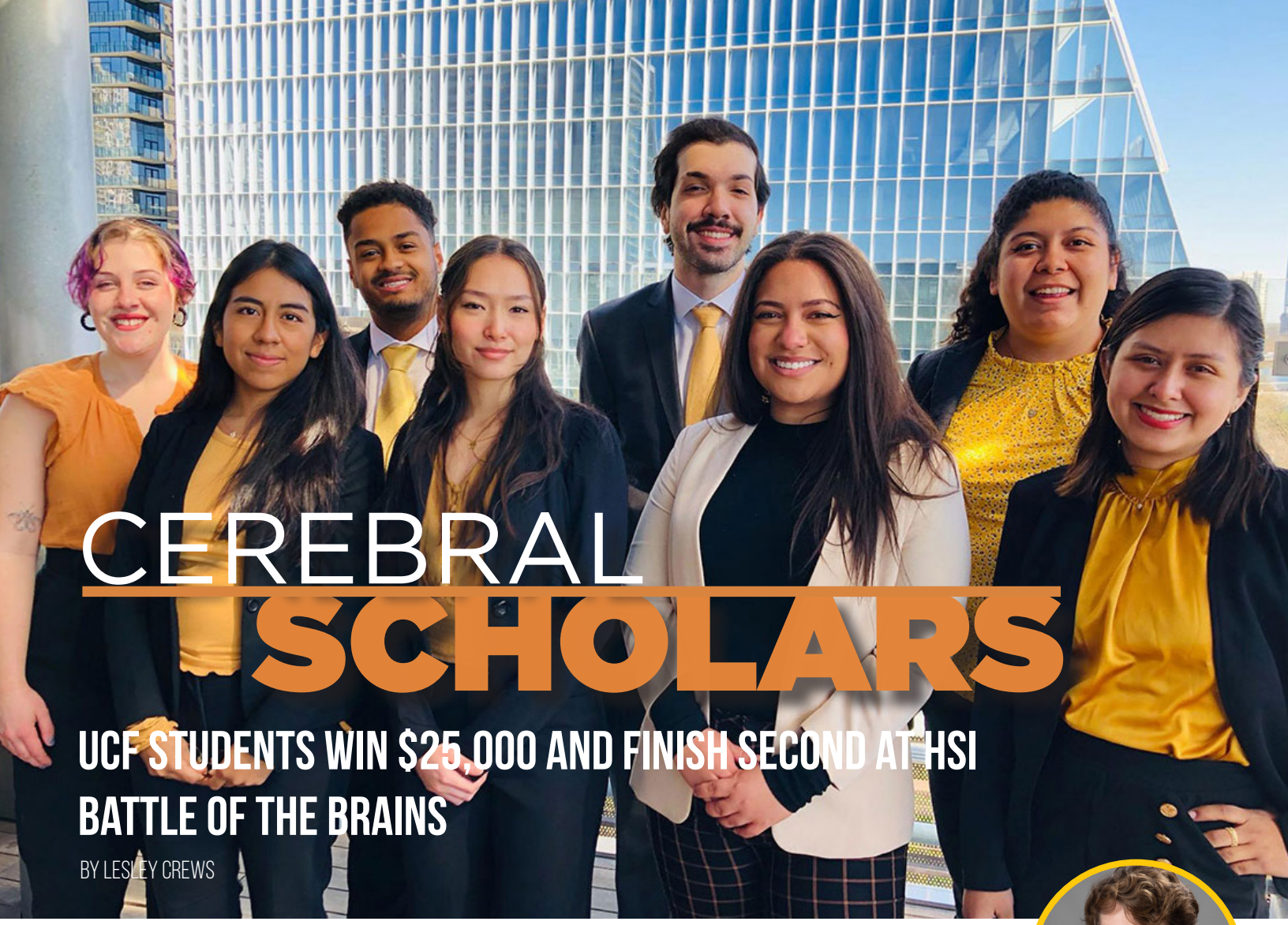
The UCF team is comprised of computer science majors Sharon Barak '21 '22MS and Daniel West, and Seba Villalobos, who is majoring in mathematics and computer engineering. The team — all of whom are Burnett Honors Scholars — finished ahead of teams that included Stanford, Columbia, Harvard and Cornell.

This is the second consecutive year Barak, West and Villalobos have successfully earned a berth into the World Finals together. The trio placed 26th among 137 teams in the 2021 World Finals held in Bangladesh. They'll now also compete in the 2022 World Finals, to be held in Egypt.

"It was comfortable to participate on campus because we already knew where everything was and we could plan our schedule well," says Barak. "Qualifying for World Finals not once, but twice, was my goal since I joined UCF, so I'm happy I achieved it."

Winning teams included MIT in first place, Swarthmore College in second and the University of Wisconsin–Madison in third. Georgia Tech, Rutgers, Purdue and the University of Washington also place in the top 10 along with UCF.

For more than 40 years UCF has been among the best in the nation in ICPC competitions, and in 2018 ranked No. 1 in North America and No. 10 in the world.



CEREBRAL SCHOLARS

UCF STUDENTS WIN $25,000 AND FINISH SECOND AT HSI BATTLE OF THE BRAINS

BY LESLEY CREWS

Eight UCF business and computer science undergraduate students put their heads together to take first place at the second annual Hispanic Serving Institution (HSI) Battle of the Brains Competition, beating out 10 other universities and earning a $25,000 prize last March in Austin, Texas.

The HSI Battle of the Brains, sponsored by KPMG, is a week-long event that focuses on networking and matching students at HSIs to opportunities in the industry. The event features a 24-hour hackathon/business plan competition with finalists presenting their solution to a panel of industry leaders like KPMG, Amazon, Home Depot, Dell and more.

Students also participated in a HBCU (Historically Black Colleges and Universities) and HSI College Fair that was hosted for the local community. The competitors' involvement provided an opportunity for them to share insight with prospective students and promote a culture of unity across Minority Serving Institutions.

Student teams from 11 colleges and universities competed for cash prizes and scholarships in a variety of cross-discipline categories. In 2020, UCF students won the Best Business Solution and a $5,000 scholarship from Dell in the inaugural competition, which was held virtually.

This year, UCF's team was coached by Carlos Valdez, a lecturer in the Department of Integrated Business, and Johnathan Mell, an assistant professor in the Department of Computer Science. Representing the Knights were College of Business students Kenneth Colón, Sheila Corro, Daniela Del Carpio and Julio Lazala, and College of Engineering and Computer Science students Natalia Colmenares, Hannah Moss, Jazmine Manriquez and Julia Silva.

JONATHAN MELL, PH.D.

"The link between technology and business is well-represented at UCF," Mell says. "I am happy that our students have been able to interact across disciplines."

LATINX CONNECTIONS

UCF JOINS CONSORTIUM TO SUPPORT WOMEN AND LATINX IN COMPUTING

BY RACHEL WILLIAMS '15 '20MA

The University of Central Florida has joined a new, national consortium that will advance the scholarship of Latinx students and the field of Latino studies, and an alliance that supports the growth and success of women and Latinos in computing fields.

The consortium includes 16 U.S. Hispanic Serving Institutions that are top-tier doctoral universities with very high research activity, as designated by the Carnegie Classification of Institutions of Higher Education. The "Crossing Latinidades: Emerging Scholars and New Comparative Directions" initiative is the first of the consortium and was awarded a three-year, $5 million grant by The Andrew W. Mellon Foundation to support its mission of increasing the number of Latinx students pursuing terminal degrees and advancing to careers in academia.

The initiative has three main components, including support and training for students as they develop their dissertation proposal; research working groups that will train graduate students, support junior faculty, and advance knowledge of Latino Humanities; and a web portal where faculty and students of all the consortium's universities can network and collaborate on ongoing Latino research studies. The initiative is led by the University of Illinois Chicago (UIC).

UCF also recently became a member of the Computing Alliance of Hispanic-Serving Institutions, which was awarded a three-year, $2.9 million grant from the U.S. National Science Foundation. Their work supports the growth of underrepresented and underserved student populations, particularly women and Latinos, in computing fields by advancing a research-based framework that attracts and supports students through the completion of graduate degrees. UCF is one of 15 member institutions, and the effort is led by the University of Texas at El Paso.

DEPARTMENT OF COMPUTER SCIENCE
UNIVERSITY OF CENTRAL FLORIDA
4328 SCORPIUS STREET
ORLANDO, FLORIDA 32816

CONNECT WITH US