

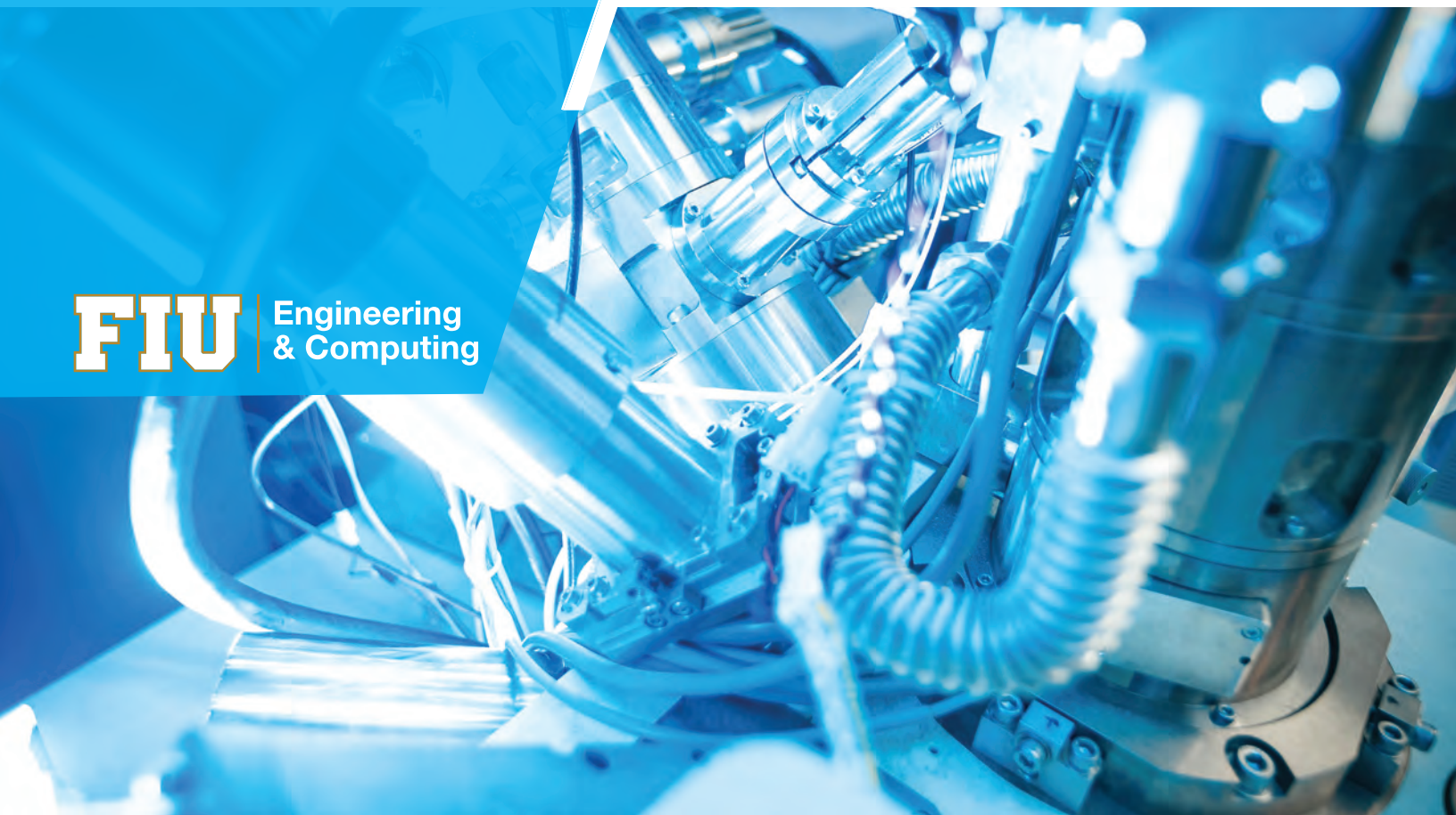
FLORIDA INTERNATIONAL UNIVERSITY

2018-19

# REVIEW

**FIU**

Engineering  
& Computing





## 2018-19 NSF CAREER Awardees:

**Monique Ross**, assistant professor for FIU's School of Computing and Information Sciences, was awarded \$600k in NSF grants for her project titled *Cracking the Diversity Code: Understanding Computing Pathways of those Least Represented*. Her mission is to develop an understanding of the experiences of African-American and Hispanic women to see how they can make an impact in the computer science field.

**Zhe Cheng**, assistant professor in the Department of Mechanical and Materials Engineering, was awarded nearly \$600k to support his research, focused on generating new electrode materials for fuels such as natural gas and biogas. The project also concentrates on promoting education in advanced ceramic materials at FIU through various outreach activities in Miami-Dade County.

**15**  
NSF CAREER  
Awardees to date

**Ranu Jung**, Wallace H. Coulter Eminent Scholar Chair of the Department of Biomedical Engineering, was among 15 honorees who received the prestigious 2019 In the Company of Women Awards, presented in partnership with the Miami-Dade Commission for Women and Parks Foundation of Miami-Dade.

## Faculty Achievements

Our distinguished faculty members are recognized for their expertise, leadership and contribution towards engineering education.

- **Arvind Agarwal**, chair of the Department of Mechanical and Materials Engineering (MME) and director for the Advanced Materials Engineering Research Institute (AMERI), and **Benjamin Boesl**, assistant professor for MME, received a **\$1M** grant from the **U.S. Department of Energy (DoE)** for research and training in advanced materials. This collaborative three-year effort seeks to transform national security through nuclear science applications by creating a **pipeline for students for the DoE's National Nuclear Security Administration**.
- **Zachary Danziger**, assistant professor for the Department of Biomedical Engineering, was awarded a **\$1.6M** NIH R01 grant. Danziger will develop an **intracortical brain-computer interface system** that can enable severely paralyzed people to interact with the world by recording electrical signals directly from a person's brain, predicting their intentions and controlling an assistive device according to those intentions.
- **Dimitris Pavlidis**, research professor and director of emerging research programs for the College of Engineering & Computing, received a **\$4.2M grant from the Air Force Office of Scientific Research** to research "Field Emitter Robust Vacuum Integrated Nanoelectronics," paving the path for **new Terahertz components that will be more tolerant to heat and radiation**.
- **Sumit Paudyal**, associate professor for the Department of Electrical and Computer Engineering, received a **\$600K** grant from DoE/UNC to **improve electric power grid resiliency during grid and weather events** by using PV systems.

# Fast Facts

2018-19 Fiscal Year



## RESEARCH

**\$32M**

in total annual  
research expenditures

**\$270K**

per principal  
investigator

**50**

research laboratories,  
centers and institutes

INNOVATION  
**44 patents**  
issued in FY2018-19



## STUDENT PROFILE



**6,094 students**

(5,176 undergraduate,  
589 Master's, 329 Doctoral)



**21% Female**

(19% undergraduate,  
30% Master's, 27% Doctoral)



**U.S. News and World Report Public Institutions  
Rankings for Graduate Programs:**

### WE ARE AMONG TOP 100

Biomedical Engineering: **#43**

Materials Engineering: **#69**

Civil Engineering: **#75**

Electrical Engineering: **#86**

Computer Science: **#93**

Mechanical Engineering: **#94**

**3:1**

Ph.D. student advising per faculty ratio

## 26 FACULTY FELLOWSHIPS

- American Academy of Mechanics
- American Association for the Advancement of Science
- American Institute for Medical and Biological Engineering
- American Society of Mechanical Engineers
- Association of Computing Machinery
- Institute of Electrical and Electronics Engineers
- International Society for Optics and Photonics
- National Academy of Engineers
- National Academy of Inventors



## 2 NEW DEGREES

Bachelor's (B.S.) degree in interdisciplinary  
engineering, Doctoral (Ph.D.) degree in engineering  
and computing education research

## NEW SCHOOL

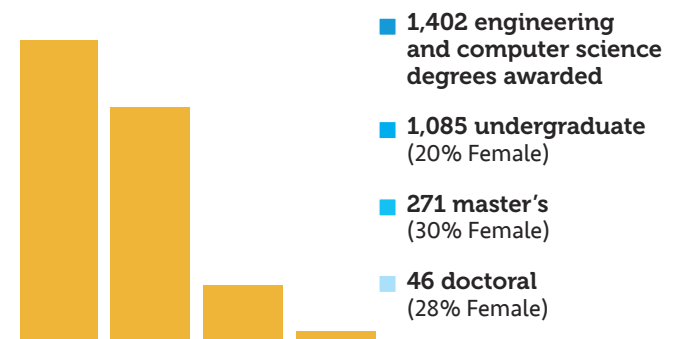
School of Universal Computing, Construction,  
and Engineering Education (SUCCEED)

- FIU is the first university to offer an engineering doctoral program in Florida
- First to offer a program with a computing education focus in the nation

## TOTAL DEGREES

B.S./B.A. **13** M.S. **15** Ph.D. **7**

## DEGREES AWARDED



**46** Ph.D. Degrees in AY 2019

FIU **ranked 15th** in the nation among public universities and  
**33rd globally for U.S. patents granted** in 2018.

NEW AWARDS  
**\$30M**  
 IN 2018-2019

## Research With Impact

Researchers are working on projects ranging from artificial intelligence to diversity in STEM. **Mark A. Finlayson** is developing technologies that will allow AI to understand narratives so they reason intelligently and are contextually aware about the world. Another researcher, **Monique Ross**, is studying the experiences of Black and Hispanic women within the computer science community and enabling initiatives to retain them in the field. Both Finlayson and Ross are faculty in the college's **School of Computing & Information Sciences**.

**Patents:** FIU was ranked 15th in the nation among public universities and 33rd globally in new utility patents issued.

**65**

University patents\*

**44**

College patents\*

\*2018

### Standout Patents:

- **Wind Resistant Concrete Roof Component** – The system reduces hurricane-induced damage and enhances occupants' safety. Inventor: Arindam Gan Chowdury
- **Smart Clothes With Wireless Power Transfer & Sensing Capabilities** – Variety of sensors are attached or implanted in the human body to monitor or check for various conditions. Inventor: Stavros Georgakopoulos

### New Awards:

**\$4.8 Million**

Air Force Office of Scientific Research (AFOSR) to launch Transforming Antennas Center (TAC) – Stavros Georgakopoulos

**\$4.2 Million**

Air Force Office of Scientific Research (AFOSR) for Field Emittter Robust Vacuum Integrated Nanoelectronics (FERVIN) – Dimitris Pavlidis

**\$1 Million**

U.S. Department of Energy for Partnership in Research and Education Consortium in Ceramics and Polymers (PRE-CCAP) – Arvind Agarwal and Benjamin Boesl



# We Are Engineers.

For the first time, FIU recognized nine **WorldsAhead** female graduates in engineering who are at the cutting edge of their fields. Conducting genetic research, predicting hurricane trajectories using artificial intelligence and assisting in the development of a three-axis shake table to study the effects of earthquakes on structures, these women are unstoppable.



**From left to right:** Rossana Zotti, Cesia Bulnes, Angela Hogan, Giselle Valdes, Gabriela Gutierrez-Duran, Ariana Bueno, Sheila Alemany, Alexandria Segovia, and Claudia Ramirez-Mederos.

## Philanthropy Profile



### **Claudia Rodriguez**

*Co-Founder and Chief Operating Officer at Tekmovil*

Claudia Rodriguez is the co-founder and chief operating officer for Tekmovil, a full-service wireless distribution company. Before Tekmovil, Rodriguez worked 19 years for Motorola Solutions, where she served most recently as corporate vice president and global chief procurement officer. Rodriguez has experience in product design and development, engineering, procurement, business development, competitive intelligence, strategy, operations, marketing and technical sales. Rodriguez is also an advocate of women/gender inclusion. She is the former president of Women's Business Council at Motorola Solutions and is the recipient of the 2019 South Florida Business Journal Most Influential Business Woman award. Rodriguez holds an electrical engineering degree from Florida International University, where she serves as the vice-chair of the Dean's Leadership Council for the College of Engineering & Computing.

## Alumni Highlight



### Adrian F. Gonzalez, FIU Alumnus '17

*President/Qualifier/Mechanical Engineer, A&P Air Conditioning*

Adrian Gonzalez demonstrated how there is no success without sacrifice. When he was a student at FIU, Gonzalez needed to miss a semester to work a full-time, entry-level position in his family's HVAC business. There were also times when he had to double up on his studying at home to be able to drive his daughters to school in the mornings. Despite the challenges, Gonzalez earned his bachelor's degree in mechanical engineering with a professional certificate in HVAC design from FIU and was named president of his family's business, A&P Air Conditioning. His company was named Best HVAC Contractor 2019 in South Florida by *Build Magazine*. Gonzalez sits on FIU's College of Engineering & Computing Dean's Leadership Council. In 2019, he established the A&P Air

Conditioning First Generation Scholarship for Future Engineers Endowment to offer scholarships to first-generation students majoring in mechanical or electrical engineering at FIU.

## Student Success Profiles



**Dieff Vital**, an electrical and computer engineering doctoral student and survivor of the catastrophic 2010 Haiti earthquake, was one of nearly 400 students and young professionals whose papers were selected from a worldwide pool of

approx. 800 applicants to attend the **2019 International Microwave Symposium**. Vital received honorable mention in the 3MT Competition for his research on wearable antennas, designed to capture power to charge biosensors. These sensors help underserved communities monitor their health without having to spend money at a hospital.



**Sandhiya Govindarajulu** received the **Best Student Paper Award** at the **2019 International Workshop of Antenna Technology (iWAT) Conference** for her paper titled *Range Optimization for DSRC and 5G Millimeter-Wave Vehicle-to-Vehicle Communication Link*. The

electrical and computer engineering doctoral student is working on the implementation of a novel communication system for self-driving vehicles to effectively exchange their information with other connected vehicles, to improve drivers' safety.



**Twin sisters Laura and Natalia Coronado**, recent computer engineering graduates, are both working for Intel, as a product marketing manager and SoC design engineer. What do they find most rewarding about their first job out of college? The diversity of Intel and how

the company encourages its employees to share their knowledge and support one another.

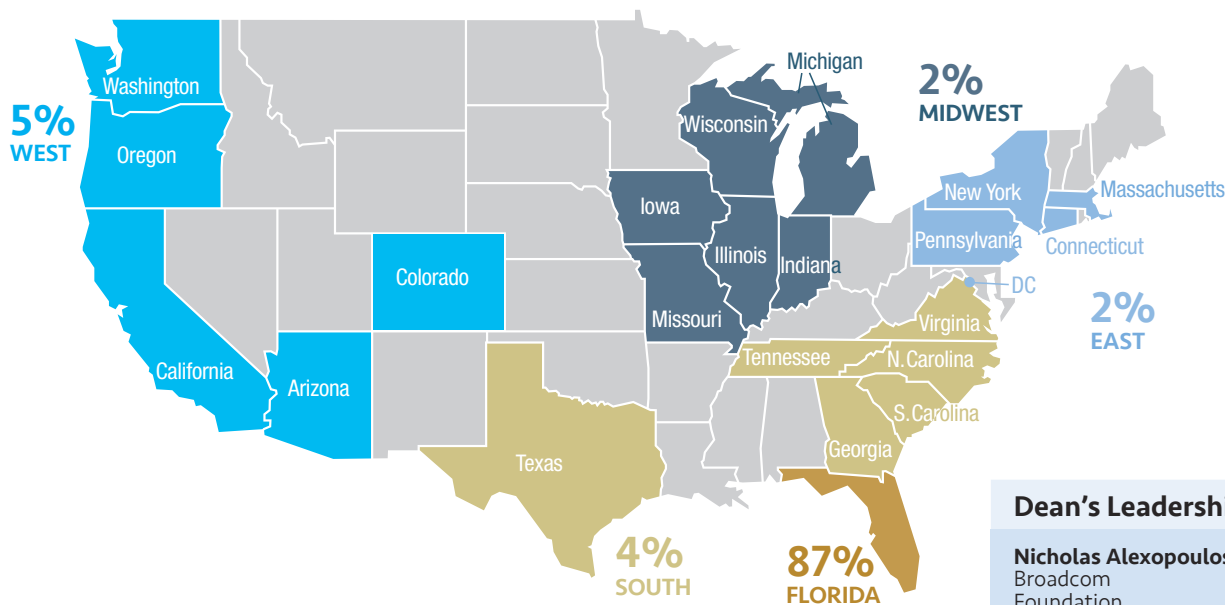
## Student Entrepreneur



Computer science alumnus **Luis Irizarry** developed an app that uses the swipe right/ swipe left technique to help select movies to watch. He developed the app with the help of StartUP FIU's Proof of Concept program and named it **Squadflick**.

**OUR STUDENTS ARE SECURING TOP JOBS AT  
MULTINATIONAL TECHNOLOGY COMPANIES  
SUCH AS GOOGLE, INTEL AND MICROSOFT!**

# Employment Statistics of CEC Students



## Top 10 Employers of Students Graduated After 2015

- Ultimate Software
- Lockheed Martin
- Nextera Energy
- Florida Department of Energy
- Microsoft
- Boeing
- General Electric
- Northrop Grumman
- Medtronic
- IBM

**Partnerships** The college has a number of collaborations with industry partners, many of which hire our students upon graduation. Here are two highlighted partnerships.

**Farelogix**, a recognized leader in the travel industry known for groundbreaking technology, just completed its first year of data science operations for the airlines industry training program. This first-of-its-kind program is dedicated to researching advanced predictive analytics for the airline industry, using machine learning and artificial intelligence. It prepares graduate-level data scientists in behavioral analytics, customer segmentation and customer sentiment analysis to assist airlines with revenue management.

The **Ultimate Software Academy for Computer Science Education at FIU** was launched thanks to a \$1 million grant from Ultimate Software, a technology company specializing in HR software solutions. The Academy built relationships with Miami-Dade County Public Schools and the non-profit, Code.org. The Academy provides professional development for K-12 teachers; programming and robotics competitions for students and the community, and training in computational thinking and educational research.

## Dean's Leadership Council

<b>Nicholas Alexopoulos</b> Broadcom Foundation	<b>Felix Miranda</b> NASA Glenn Research Center / MS 54-4
<b>Humberto P. Alonso, Jr.</b> Atkins Global / North America	<b>Chad Moss</b> Moss & Associates
<b>Allan Arch</b> Southern Gear and Machine, Inc.	<b>Sunil Navale</b> Northrop Grumman Aerospace Systems
<b>Agustin Arellano</b> NV2A Group	<b>Charles Nielson</b> Nielson, Hoover & Associates
<b>Robert Carballo</b> Stantec	<b>Bryan J. Olnick</b> Florida Power & Light Company
<b>Charles Chase</b> Lockheed Martin Skunk Works	<b>Gus Pego</b> HNTB Corporation
<b>Jessica Coats</b> Harris Corporation	<b>Christa Petros</b> Sirius XM
<b>Hal Delgado</b> Ethicon Endo Surgery Johnson & Johnson	<b>Susan Racher</b> Wallace H. Coulter Foundation
<b>Christopher Drumgoole</b> General Electric	<b>Matt Reynolds</b> Fiat Chrysler Automobiles
<b>Kurt Dyer</b> Lemartec Corporation	<b>Claudia Rodriguez</b> Tekmovil
<b>Eric Evans</b> MIT Lincoln Labs	<b>Adam Rogers</b> Ultimate Software
<b>Adrian Gonzalez</b> A&P Air Conditioning Corporation	<b>Kelly Romano</b> BlueRipple Capital LLC
<b>Leo Kempel</b> Michigan State University	<b>Eduardo Siman</b> Intradeco Apparel
<b>Paul Johnston</b> WATSCO	<b>Erdem Topsakal</b> Virginia Commonwealth University
<b>Danny Katz</b> DBK Concepts	<b>Scott Trapp</b> Lockheed Martin Corporation
<b>Tim Kuebler</b> Titan America	<b>Emmanuel Tormes</b> The Boeing Company
<b>Ron Lavin</b> Boeing	<b>Dan Whiteman</b> Coastal Construction



Florida International University  
College of Engineering & Computing  
10555 West Flagler Street  
Miami, FL 33174



FIU's College of Engineering & Computing provides endless opportunities to its students, offering a complete range of fully accredited engineering bachelor's, master's and doctoral degree programs in a number of engineering disciplines. With approximately \$32 million of external funding, groundbreaking research is an integral part of the college's mission. The college is also committed to diversity. It was ranked number one in bachelor's degrees awarded to Hispanics and number six in bachelor's degrees awarded to African-Americans in the United States by the **American Society for Engineering Education**.

## NEXT HORIZON

The Campaign for FIU

FIU's Next Horizon campaign promises to put FIU at the forefront of discovery and innovation, finding solutions to the challenges of the world and driving economic growth by increasing patent production and industry collaboration. The Next Horizon campaign is your opportunity to invest directly in the next-generation engineering workforce. Please visit [nexthorizon.fiu.edu](http://nexthorizon.fiu.edu).

**[cec.fiu.edu](http://cec.fiu.edu)**

305-348-2522



FIU is committed to providing a campus climate free from illegal discrimination, harassment, and sexual misconduct. For more information, visit [diversity.fiu.edu](http://diversity.fiu.edu)