

# FLORIDA TECH

M A G A Z I N E

FALL 2020

## A New Day

What does university education look like during a pandemic?

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## Agents of Change

A look at race, diversity and new education initiatives at Florida Tech.

PERSEVERE





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Fall 2020 • Volume 29, Issue 2

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On the cover: When students go to college, one of the goals is to become a well-rounded global citizen in addition to a scholar. Furaha Merritt, a senior information systems major and president of the Black Student Union, is leading that charge through new initiatives.





Florida Tech had approximately 1,200 students move through a unique orientation week in August designed with social distancing and all necessary COVID-19 precautions in mind, including a drive-thru check-in. Thanks to the efforts of 52 student orientation leaders and two lead staff coordinators, new Panthers still enjoyed the full orientation experience but in a conscientious and innovative way they are sure to remember.

## FLORIDA TECH MAGAZINE

[floridatech.edu/magazine](http://floridatech.edu/magazine)

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Back cover pop quiz answers:

1.  $2x^3 + 5x^2 - 7x + \frac{1}{4} \sin(4x) \Big|_0^3$   
77.866

2. 5 meters



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## PRESIDENT'S PERSPECTIVE

Dear Alumni and Friends,

This has certainly been a year like no other. Though as challenging as 2020 has been through the COVID-19 pandemic, we all persevere.

This fall, by giving students in-person and remote learning options, we have stressed both flexibility and safety. Our faculty and staff have stepped up in true Florida Tech fashion to meet changing needs and accommodate new realities. Our students, with the steadfast support of their parents and families, have demonstrated their commitment to earning a high-quality education. The university and its faculty and staff remain dedicated to providing new opportunities for education, growth and understanding.

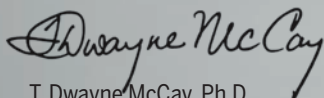
Last fall, we publicly announced a bold step forward in the physical evolution of the campus with the construction of an \$18 million Health Sciences Research Center. The announcement has been welcomed by the medical community as well as prospective students and their parents. It will be one more important way that we contribute to our primary mission of education and research. I'm pleased that we broke ground on this important new facility Oct. 16.

Throughout the summer, into this fall and beyond, we are also working hard to localize the national conversation and foster important discussions about race, diversity and equality. I have high hopes for the increased levels of understanding that this dialogue has the potential to produce. We all must work together to find shared solutions to our societal ills.

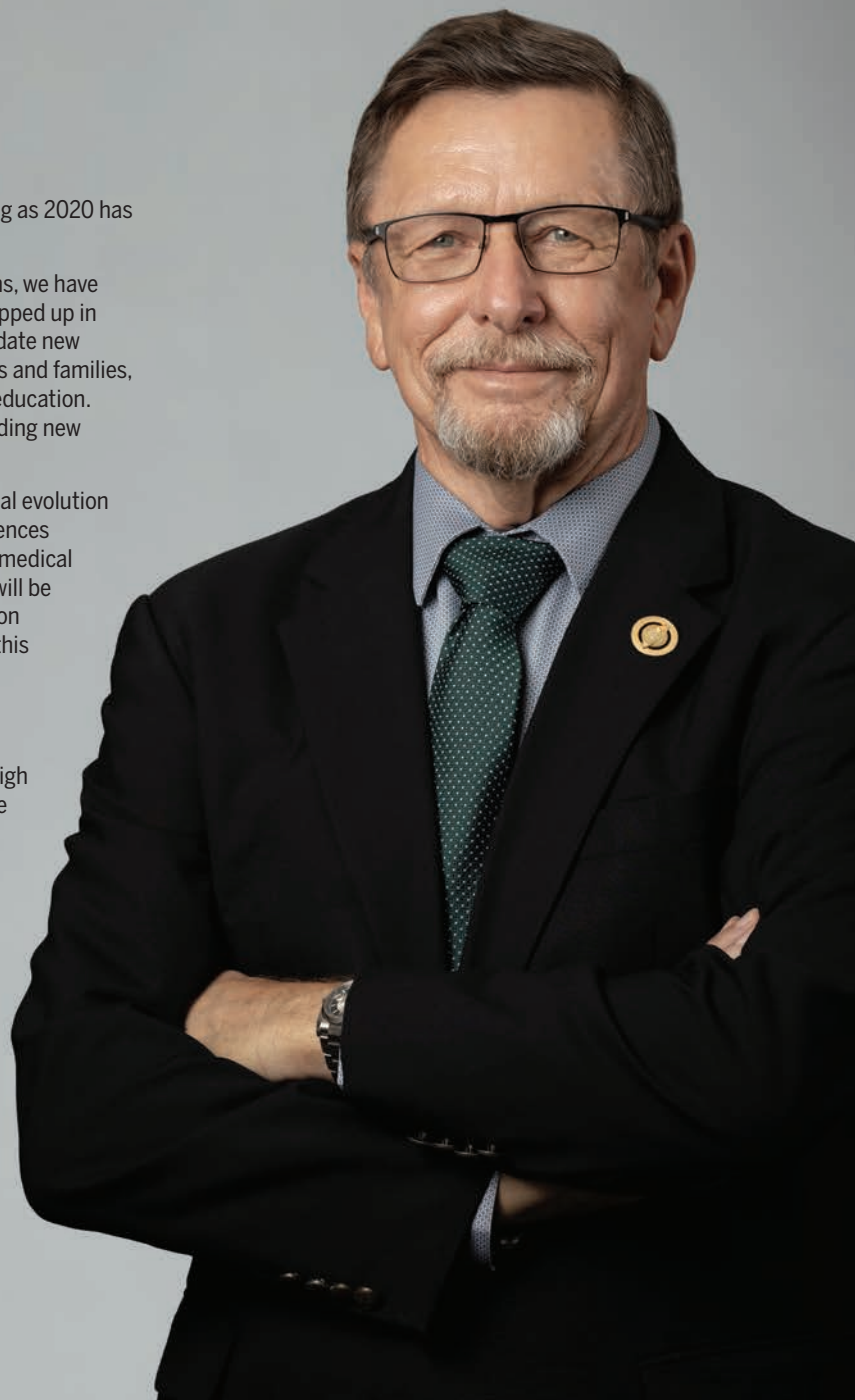
Even in the most disconcerting days of the pandemic, the bright future that a quality education provides should inspire us all to never lose hope. That remains my commitment and the commitment of this university.

We look forward to the future with renewed optimism and determination.

Sincerely,



T. Dwayne McCay, Ph.D.  
President and CEO



### A BOON FOR BIOMEDICAL STUDIES ON CAMPUS

Florida Tech's Health Sciences Research Center will complete the Olin Quad area of south campus. The three-story, brick-clad building will be filled with cutting-edge equipment, labs and learning spaces centered on biomedical engineering and sciences that will supercharge the university's efforts to meet the expected surge in those fields in the coming years. Construction is scheduled to be complete no later than December 2021.





# ANATOMY OF THE PANTHER NETWORK

AS THE PANDEMIC HAS LEFT MILLIONS WITHOUT EMPLOYMENT, FLORIDA TECH ALUMNI HAVE AN EXTRA TOOL IN THEIR ARSENAL: YOUR PANTHER NETWORK

An estimated 13.6 million Americans are out of work, according to the August Employment Situation report from the U.S. Bureau of Labor and Statistics, and that figure doesn't include those who haven't yet claimed unemployment benefits or those outside the country. The travel industry has perhaps been hit the hardest, with economists estimating \$84 billion in losses for airlines this year, despite government bailouts and other financing.

This means many of our fellow Panthers have been impacted and are left either searching for new employment

or in need of resources to help their departments or business survive and thrive. Our Panther network is over 60,000 strong, an asset to all Florida Tech alumni who are in need of business and career connections.

Activating this network may feel daunting, but never fear. Florida Tech's Jillian Leclerc, alumni engagement officer, and Dona Gaynor, director of career services, offer advice on how to make the most of the connections you may not have even realized you have as a Florida Tech alumnus.

“As we navigate these uncertain times, it is important to strengthen our connections and networks ... If you're going through a difficult time with your job or are experiencing unemployment, your fellow alumni may be able to help.

—Jillian Leclerc, alumni engagement officer



**NETWORKING PANELS:** These online networking panels jointly hosted by the offices of Alumni Affairs and Career Services allow you to virtually meet others in your field and learn from industry experts. Follow these offices on their social channels for info on upcoming panels and recordings of past events, which have focused on the areas of:



- Space systems
- Women in aviation
- Applied behavior analysis
- International alumni



**SOCIAL CHANNELS:** Engage with fellow alumni through these channels.

**ALUMNI AFFAIRS OFFICE:**

- /groups/62611
- /FloridaTechAlumniAssociation
- /AlumniFLTech
- /FLTechAlumni

e-Gatherings: check them out on page 33!

**CAREER SERVICES OFFICE:**

- /in/FITforaJob
- /FloridaTechCareerServices
- /FITforaJob
- /FITforaJob

**CAREER SITES:** If you're looking for a new position, these should be your two top stops. Not only are they excellent resources in general, but they allow you to leverage your Panther status to give you an edge on the competition in the job market.



**LINKEDIN:** This popular site is easily the go-to source for online career networking. If you're not already utilizing LinkedIn for its growing list of tools in addition to networking—personal career profile and résumé, job search, content sharing, one-to-one messages, industry news and more—you need to be, whether you're in the job market or not. But what makes the site extra-awesome for Florida Tech alumni is that you can search other LinkedIn members by school attended, allowing you to find and connect with other fellow Panthers. You can also filter searches by city, company, connections and more. Add the app to your phone for instant notifications of engagements, messages and new connections.



**BONUS TIP:**

Gaynor advises that job seekers use both of these sites in tandem. You can connect your LinkedIn account to your Handshake account for maximum benefit!

**HANDSHAKE:** This is not just another job-search site. Handshake is made for the exclusive use of university communities. Companies turn to Handshake all the time to find top-of-the-top candidates from Handshake universities like ours—some post jobs exclusively for Florida Tech, meaning you won't find them anywhere else. You'll need your alumni email address to sign up (check with Alumni Affairs to find yours!) to verify that you are a Florida Tech alumnus. Once you're in, you'll find more than just open position listings; you'll get access to career fairs hosted by Florida Tech and posting companies, résumé and career advice, workshops and webinars, opportunities abroad and more!

**Pandemic-friendly:** Within Handshake, go to Career Center then Career Shift to access remote and work-from-home jobs as well as COVID-19-impacted hiring, a list of which companies are still hiring and which ones aren't.



**STILL CONFUSED?**

If you find yourself looking for a bit more help as you navigate the job market, make an appointment through Handshake's Career Center portal for virtual job search assistance, like mock interviews and résumé writing advice, with our Office of Career Services.





**ONE BIG QUESTION** WITH JOO YOUNG PARK

# My child is in virtual school. Now what?

For parents who work full time, juggling other responsibilities and home-schooling kids during this pandemic can often be overwhelming and a real challenge. There are flooded resources such as educational apps, curricular materials and technologies for home-schooling. However, the pandemic reminds us that creative problem-solving skills and adaptability are required to create value amid daunting challenges in this unpredictable world.

Education is for inspiring minds and fostering learners' autonomous efforts to discover and create value in life's reality. Any situation or circumstance presents both challenges and possibilities. The actualization of positive possibilities is the essence of value creation.

From this perspective, I would recommend creating a home environment and developing teamwork with family (parents) through a dialogic process that can build learners' autonomy, confidence and sense of belonging.

1. Set up the environment with various activities, and let your children choose what they like to do or guide them with a few choices to select. Also, create the schedule and routine. Young children especially are reliant on consistent and predictable experiences; they feel a sense of security from those routines.
2. Be at the present moment with your children, when you can: Amid this work-home-school life, there will be many frustrating moments, but children's sense of belonging and ability to succeed in teamwork can be nurtured by the relationship with even one parent who cares for them.
3. Attune to your children's interests and immerse their activities or projects in nature or everyday life: Children learn best and become creative when they enjoy their activities. Let them pursue their interests. You could do activities such as finding a number pattern (e.g., Fibonacci sequence) in the number of flower petals (e.g., lilies, buttercups and some daisies), the number of florets in the spirals on your cauliflower and the way tree branches form and split. Or have them engage in a project based on a timely question, such as, "What is a mathematical model for the survivability of different strains of infectious diseases?" (biology, algebra) The real-world format allows us to teach children different skills without the struggle of direct instruction and have them build competencies valuable for today's world, such as problem-solving, critical thinking, collaboration, communication and creativity.

Lastly, I would try to find a moment to appreciate the opportunity since this time would be limited: I would ask myself and other parents to pour love upon our children like the sun nurturing sunflowers because people can live powerfully for the rest of their lives with the energy of the love they receive in their childhood.



## What to Do?

In this new world of mixing virtual schooling with working from home, there are plenty of challenges that can leave both parents and kids feeling worn out. The new homeschool students can feel distracted from their new learning environments, while the parents can feel overwhelmed by the circus act of juggling their career duties while making sure their children are fulfilling their scholastic ones. Here are three tips to keep in mind for parents working at home with their young students.

### » CONSISTENT SURROUNDINGS.

Set up the environment with various activities, and let your children choose what they like to do or guide them with a few choices to select.

### » SUPPORTING YOUR CHILDREN.

Though this current time can be stressful, it's important to be at the present moment with your children, when you can.

### » PERSONALIZE THEIR INTERESTS.

Attune to your children's interests and immerse their activities or projects in nature or everyday life.

#### « About the author:

Joo Young Park is an assistant professor of mathematical sciences whose research and project interests include teaching and learning mathematical modeling, identifying teachers' knowledge for mathematical modeling instruction and mathematical modeling task analysis.



Receiving this scholarship means I'm one step closer to achieving my childhood dream of becoming an astronaut.

—Samantha Pryor

## Two Florida Tech Students Named Astronaut Scholars

Florida Tech seniors Chloe Klare and Samantha Pryor have been named 2020 Astronaut Scholars, the prestigious recognition from the Astronaut Scholarship Foundation that spotlights the best and brightest STEM students in the country.

Klare, a double major in astronomy/astrophysics and mathematical sciences, and Pryor, an astrobiology major, are two of just 56 Astronaut Scholars from 41 different U.S. universities comprising the 2020 class. They will receive scholarships, a paid trip to the Astronaut Scholarship Foundation's Innovators Weekend and opportunities for ongoing engagement with astronauts, Astronaut Scholar alumni and the foundation.

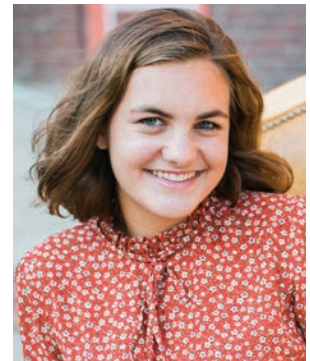
"Winning the astronaut scholarship is really exciting for me because so many of the former Astronaut Scholars are now amazing and successful scientists and engineers," Klare said. "The fact that the foundation picked me makes me feel like I can achieve really cool things in my future career, too."

"Receiving this scholarship means I'm one step closer to achieving my childhood dream of becoming an astronaut and that I must be doing something right," Pryor said.

Klare has spent the last two years working on a research project about Jupiter's atmosphere with Csaba Palotai, associate professor and program chair of physics and space sciences.

For the past 2 ½ years Pryor was in Jeremy Riousset's planetary geosciences lab, helping create a 3D topographical and crustal remanent magnetic field model of Mars. Pryor also conducted research in Andrew Palmer's chemical ecology and astrobiology lab, where her project involves using the *Arabidopsis thaliana* plant as a model organism to study the effects of quorum-sensing molecules on root growth.

Since its inception more than 35 years ago, Orlando-based ASF has awarded over \$5 million in scholarships to more than 600 of the nation's top scholars.



Chloe Klare



Samantha Pryor



## New Partnership with Burrell College and Steward Health Care



“We have been reminded during these troubling times of the importance of skilled physicians, and we are pleased to help strengthen the ranks of this essential field through our unified efforts.”  
—President Dwayne McCay

Through a unique partnership with Florida Institute of Technology and Steward Health Care, Burrell College of Osteopathic Medicine in New Mexico is expanding its clinical education reach to Florida.

Since Aug. 3, nine medical students attending Burrell College have had the opportunity to conduct clinical rotations, or hands-on medical training, at Rockledge Regional Medical Center, Melbourne Regional Medical Center and Steward Medical Group clinics. Students have been able to select an experience among 14 medical specialties, including gastroenterology, forensic psychiatry, ophthalmology and interventional cardiology.

“We are pleased to offer our students these additional learning opportunities in Florida,” said John Hummer, president of the Burrell College. “The Space Coast of Florida and New Mexico have a long history of strong relationships and partnerships, including

the establishment and success of the U.S. space programs. We are excited to see this new medical partnership come to the same fruition.”

Medical students rotating in the new Florida hub live in off-campus housing near Florida Tech. Students have access to the same services that full-time Florida Tech students receive. This includes access to the student union facilities, university libraries, athletics facilities, campus health center, meal service and outdoor aquatic center, as well as campus and community events.

“Florida Tech has for six decades seen the impact of educational excellence firsthand, so we are privileged to partner with these two leading organizations, Burrell College of Osteopathic Medicine and Steward Health Care, in the education of the next generation of medical professionals,” said Florida Tech President Dwayne McCay. “We have been reminded during these troubling times of the

importance of skilled physicians, and we are pleased to help strengthen the ranks of this essential field through our unified efforts.”

Forty physicians in Florida have signed up to supervise medical student trainees and participate in clinical rotations. Steward Health Care Network’s goal is to expand the pool of physician participants to 130.

“It is an honor to partner with Florida Tech and the Burrell College to begin this groundbreaking medical education endeavor in Brevard County,” said Andy Romine, president of Rockledge Regional Medical Center. “It is a true testament of the strong medical staff we have at Rockledge and Melbourne Regional Medical Centers and their desire to coach and guide the next generation of physicians. One of the goals of this program is to educate these physicians locally and for them to potentially spend their careers caring for the residents of Brevard County.”



## Center for Advanced Coatings Finds Solutions to Industry Issues and Offers Research Assistance



The Plasma Spray Thermal Lab at Florida Tech's Center for Advanced Coatings features a spray gun that melts ceramic powder onto test material at high speeds.

Most people take for granted the “why” of how critical pieces of daily life work—from lawnmower blades to turbine engine parts. Not so at Florida Tech's unique Center for Advanced Coatings, where making everyday things stronger, safer and more efficient is the mission.

The research group formerly known as the National Center for Hydrogen Research has reorganized into a new research group, the Center for Advanced Coatings. Through the development and testing of thermal barrier coatings, researchers explore ways to make parts work better and last longer. The three primary laboratories for this research are the Plasma Spray Thermal Lab, the High Heat Flux Laser Test Lab and the Material Science Analysis Lab, all located at the Florida Tech Applied Research Lab in Melbourne.

Mary Helen McCay is the director of research and principal investigator. She is joined by Pei-Feng Hsu, co-director, Ilya Mingareev, assistant professor, Frank Accornero, thermal spray specialist, Edward Croy, laser specialist, and Yingsang Wu, program coordinator.

Launched in part with equipment donated by Siemens, the lab is seeking new industry partners to support. The center provides various services, such as plasma spray, laser processing and optics, metallurgical and failure analysis, protective coatings, industrial robotics and training.

McCay and her colleagues are already working with groups including Rolls-Royce and Siemens Corp. and recently began collaborating with Larsen Motorsports on ways to improve the function of their jet dragsters.

The first stage of testing occurs in the Plasma Spray Thermal Lab in a self-contained booth, where an industrial-sized, bright orange plasma spray gun melts a ceramic powder onto test material at high speed. Nitrogen and argon gases are joined with hydrogen and helium, which increase the heat and velocity of the plasma.

After the test material is coated, it moves down the hall to the High Heat Flux Laser Test Lab. Using a high-powered laser, the test material is heated to extreme temperatures from above and cooled from below with circulating air. A network of thermal sensors, cameras and computers collects data as the material is pushed to temperatures above 3,000 degrees Fahrenheit.

McCay, who holds a Ph.D. in metallurgical engineering and was a decorated NASA engineer early in her career, said this type of testing is ideal for turbine blades that might be used in industrial equipment or even on airplanes. But there are many other applications as well, from automobiles to prosthetics to shipbuilding.



### Scott Center Receives New Tablets Thanks to Student, Company

The Scott Center for Autism Treatment at Florida Tech will get \$5,000 and a day of service after it received the most votes in Regions Bank's nationwide June 2020 What a Difference a Day Makes Grant Award Contest.

The renowned facility bested 10 other nonprofit organizations in the contest, receiving nearly 28,000 votes from a total of more than 82,000. All the organizations are centered on helping people with autism and their families.

During June, visitors to the Regions Bank Doing More Today website could learn about each organization and then cast an online vote once per day in support of their favorite organization.

The contest was part of Regions' observance of the 30th anniversary of the signing of the Americans with Disabilities Act. The purpose of the landmark legislation is to promote fair and equal treatment while fostering a more inclusive society.

A Florida Tech graduate student and her company have recently stepped up for The Scott Center, as well.

Valrie Grant, an MBA student at the Bisk College of Business, saw the news of The Scott Center's Regions Bank win and realized the company she founded, information and communications technology firm GeoTechVision, could take action.

Through its EduTechAid program, GeoTechVision donates tablets to organizations in need. Understanding The Scott Center's need for the devices to help with data gathering, Grant made arrangements to donate 15 tablets.

## Gainesville's Emily Simpson Plans to Study Planetary Science

Florida Tech announced that Emily Simpson is the 2020 Farmer Scholar and will receive the university's most prestigious financial award.

Simpson, a Gainesville resident who plans to study planetary science at Florida Tech starting in the fall, graduated from Buchholz High School this year with a weighted GPA of 4.76, landing her in the top 5% of her class of more than 500. She also posted a 4.0 GPA in her dual enrollment at Santa Fe College, where she earned an associate degree in exploring sciences.

The Farmer Scholars program began in 2009, when Phillip W. Farmer, the retired chairman, president and chief executive officer of Harris Corp., now L3Harris



Emily Simpson

Technologies, and past chairman of the Florida Tech board of trustees, donated \$1.5 million to establish the endowed scholarship.

The program provides a full, four-year scholarship awarded annually to a Florida resident and high school graduate who is among the top 5% of his or her class and demonstrates exceptional academic achievement and outstanding personal character.

Included in the scholarship are all tuition and university fees, a room in L3Harris Village's Farmer Hall and the regular university meal plan. Additionally, the Farmer Scholar is given a stipend between the junior and senior years for enrichment through Florida Tech's summer study abroad program at Oxford University.



### Student Chapter Receives Merit Award from SHRM

The Society for Human Resource Management (SHRM) awarded the 2019–2020 Outstanding Student Chapter Award designation to the Florida Tech SHRM student chapter for providing superior growth and development opportunities to its student members.

The Florida Tech SHRM chapter strives to be a creative and inclusive program that promotes both educational and professional career development. Current chapter members consist of undergraduate and graduate students within CoB and CoPLA. The initiatives implemented by the 2019–2020 executive council focused on students' transition from school to the workplace.

“During normal circumstances, weVENTURE helps women launch and grow their businesses. However, in times of crisis, we accelerate our role helping entrepreneurs sustain their business by providing access to the information and resources they need to survive these unforeseen challenges.

— Kathryn Rudloff, weVENTURE executive director

## weVENTURE Steps Up During Pandemic

weVENTURE, the women's business center at Florida Tech's Bisk College of Business, has been awarded \$420,000 from the U.S. Small Business Administration under the federal Coronavirus Aid, Relief and Economic Security (CARES) Act to expand its services assisting small businesses in Brevard, Indian River and St. Lucie counties in responding to and recovering from the impacts of the coronavirus pandemic.

Among its primary benefits, the funding will allow weVENTURE to fully fund the participation of 31 businesses in the center's celebrated IGNITE

360® Mentoring Program, which takes business owners through an intensive planning and implementation process that addresses specific, critical actions necessary to ensure sustainable growth.

weVENTURE also secured a \$25,000 donation from Bisk Ventures and \$16,500 from the Wells Fargo Foundation in support of its mission to support female entrepreneurs.

“During normal circumstances, weVENTURE helps women launch and grow their businesses,” said weVENTURE executive director Kathryn Rudloff. “However, in times of crisis, we accelerate our role helping

entrepreneurs sustain their business by providing access to the information and resources they need to survive these unforeseen challenges. We are grateful to Congress and the administration, as well as Bisk Ventures and the Wells Fargo Foundation, for supporting the work of women's business centers in this meaningful way.”

In addition to funding IGNITE 360® participation, these grants will allow weVENTURE to enhance other services for businesses in its SBA-defined region of Brevard, Indian River and St. Lucie counties, such as personalized business coaching and educational training.



## 'The Best Mask for Any Situation'

The Remasque Pro face mask by Remasque, the newest business venture from **RAJ SAREEN '04**, was featured on "Today" in August. This mask is made from sustainable, antibacterial bamboo fabric, which quickly absorbs and evaporates water, and uses a sewn-in nanofiber filter that is tested to block over 99% of particulates. Remasque has donated thousands of these masks in an effort to quell the spread of COVID-19. Read more about Saren's ventures on page 39.



## Splashdown Speaker

**LAURA SEWARD FORCZYK '06** was on BBC World News during its live coverage of the SpaceX Crew Dragon Demo-2 splashdown Aug. 2. The splashdown was a result of SpaceX's first mission and the first crewed U.S. orbital launch since July 2011.



Photo credit: NASA/Cory Huston

## Commitment to Excellence

During the Pi Kappa Alpha International Fraternity's inaugural virtual awards ceremony, Zeta Sigma Chapter was recognized with the Raymond L. Orians Chapter Excellence Award, which recognizes overall chapter excellence. Chapters that win this award are among the best on their campuses and Pi Kappa Alpha's most competitive chapters.

The chapter was recognized for its involvement in campus activities, raising over \$105,000 for philanthropy, completing nearly 3,000 hours of community service and ranking first in fraternity intramurals.

The chapter was also recognized with the PIKE University 25-Man Commitment recognition and the Level II Recruitment recognition.



## Motorcycles on Mars?

Lean angle, gravity, motorcycle racing on Mars? Assistant professor David Harris put the fun in physics as a guest expert for three episodes of NBC Sports Network's motorcycle racing program "Inside Motoamerica" this summer.

"When Elon Musk sets up his colonies, if he wants motorcycle racing, he'll have to do creative things with the tracks!" said Harris in the "Road America" episode that aired June 7, 2020. "Racing on Mars? You can sign me up! I'm there."







## Clemente Center Varsity Gym Court Receives Fresh New Look

Florida Tech's Clemente Center court has received a facelift for the 2020–21 athletic year. This is the first time the floor has undergone a redesign since May 2009.

The home court of the Panther volleyball and men's and women's basketball teams has a new design that features a two-tone playing surface, new Florida Tech branding and a silhouette of a space shuttle launch, which extends nearly the width of the court.

"We are all very excited about the new look to the Clemente Center court," said interim athletic director Pete Mazzone, who is in his 35th year at Florida Tech. "We usually update our courts on a 10-year cycle, this time being 11 years as we released new branding that we wanted to incorporate in the redesign. The addition of the new LED lights just installed in the Clemente Center; people are really going to appreciate the beauty of this court.

"This new design just makes sense with the history of the university and the space program. It is perfect timing that we release this court now as momentum around space exploration begins to pick up again. This court becomes a symbol

and helps us identify with our past and future in space. We are the Space Coast. It is very exciting for the teams that are going to play here, our students and the fans."

The new design was conceptualized by Florida Tech director of athletic communications Daniel Supraner in December 2019 as a way of making the court a symbol for the university's historical relationship with the Space Coast and the space program at Cape Canaveral.

"The image of the shuttle harkens back to the shuttle era and acts as a timeless reminder of the university's and the region's space heritage," said Supraner. "I had our university motto *Ad Astra Per Scientiam—To The Stars Through Science*—in mind when I first developed the idea on a scratch sheet of paper and presented it to our administration and coaches during the initial stages of the development process. I know this new court design will serve as a symbol for our university's extensive history with space travel."

Florida Tech has a rich history with space flight. Jerome Keuper, the founding

president of the university, established Brevard Engineering College in 1958 to offer educational opportunities to NASA scientists, engineers and technicians at Cape Canaveral. The university has been the home to numerous others who have left a footprint in the realm of space exploration.

Three Florida Tech faculty members have been to space:

- Buzz Aldrin, Sc.D. (Gemini 12, Apollo 11), former research professor of aeronautics
- Samuel Durrance, Ph.D. (STS-35/Astro-1, STS-67/Astro-2), former professor of physics and space sciences
- Winston Scott, M.S. (STS-72, STS-87), professor of jazz studies

Additionally, five of Florida Tech's alumni have served as space shuttle astronauts.

Ninth-year volleyball head coach Amy O'Brien and her team were anxious to get on the court.

"Our new floor looks great. I'm so excited for our team to be competing on our new gym floor. It's modern, sleek





## 2020 Fall Sports Season Postponed Due to COVID-19

In July 2020, the Sunshine State Conference (SSC) and the SSC President's Council announced the postponement of all scheduled competition in the 2020 fall sports season as a result of the ongoing COVID-19 pandemic. This decision affects the playing seasons for men's and women's soccer, men's and women's cross country and women's volleyball.

Two months later, in September 2020, the Conference and its President's Council unanimously agreed to postpone all competitions in the winter sports of basketball and swimming through Dec. 31, 2020.

"The decisions to postpone competitions in the fall 2020 semester did not come easily," stated Florida Tech interim athletic director Pete Mazzone. "As a university and a conference that has a great passion for sports, we certainly feel for our coaches, staff and most importantly our student-athletes. We will, as a collective group, continue to remain positive and work hard knowing that one day soon we will be competing again."

Florida Tech and the member institutions of the SSC continue to explore seasons of competition for each of our fall, winter and spring sport programs to take place during the spring semester of 2021.

and coincides with our location on the Space Coast."

John Reynolds, who has been a part of the women's basketball program since its inception 35 years ago and served as head coach the past 34 seasons, was excited to get his team back on the new floor.

"I know our players were as impressed with the new look to our home court in the Clemente Center as I am," said Reynolds. "I want to thank all of those who worked so hard on this project. I couldn't wait to get our team back on it."

Billy Mims, who enters his 16th season as head coach of the men's basketball team, is excited about the transformation of the Panthers' home court and what it means to the community.

"The Clemente Center has always been the largest basketball facility in Brevard County, but now it might just have one of the most beautiful courts in the whole country. I know our players are all looking forward to playing games on it. It has the modern look and feel of the styles used by NBA teams and some of the top NCAA arenas in the country.

"We are a proud member of the Space Coast of Florida, and the court design highlights our link to this community and the space program. Combined with the new lighting, our fans will love watching games in Clemente this season."

From start to finish, the installation of the Clemente Center's new court design was a six-week process that included four stages, 1) sanding down to the natural wood, 2) applying the walnut-color stain to create shuttle silhouette, 3) placing design, logos and lines on varsity and intramural gym floors, 4) varnishing the surface.

The project began during the first week of April 2020. Florida Tech enlisted Impact Sport Surfaces Inc., based in Deerfield Beach, Florida, for the project. Impact has worked with numerous professional and college sports organizations, including the Orlando Magic, Miami Heat, UCF, Florida Atlantic University and Nova Southeastern.



Florida Tech is working with the FAA to provide research data to understand how urban air mobility vehicles will safely transport people.

## Drone Research Taking to the Skies Through New Urban Air Mobility Grant

You head to a “vertiport” and await the vehicle. The drone picks you up and flies you through the city, dropping you off at your destination.

This sounds like something out of the Jetsons, but it is an eventual reality—and Florida Tech is working with the Federal Aviation Administration to provide key research data to understand how urban air mobility vehicles will safely transport people.

Florida Tech and Georgia Tech are sharing a recently awarded \$600,000 grant from the FAA to produce research test data on urban air mobility vehicles. At the Space Coast Drone Test Center at Valkaria Airport, Florida Tech flight test engineering chair Brian Kish; aerospace, physics and space sciences associate professor Markus Wilde and a group of students are testing the capability of drones by creating flight plans of various lengths, as well as different ratios of forward and vertical flights. The data collected will provide insight into the mechanical demands of drones based off the flight plans and will allow researchers to create models that, in turn, will be able to be tested on urban mobility vehicles.

These vehicles operate over urban terrain and depend on propulsive lift for the majority of their operations. To keep them safe and from crashing into urban areas, energy and power need to be managed properly through the machine’s reserves.

Through a partnership with Chris Larsen at Florida Tech partner Larsen Motorsports for a fall jet engine propulsion course, Kish learned Larsen ran the Space Coast Drone Test Center. After discussions with Larsen, the researchers now had a testing site.

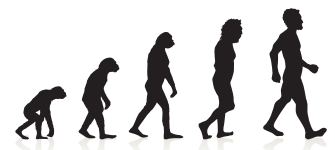
In a similar way to how automated cars presented new safety and emergency protocols, the researchers at Florida Tech are examining the new safety mandates that will be needed for automated aerial vehicles.

“What we’re helping them do is to help them come up with the certification standards and criteria for the vehicles,” Kish said. “But before that we can do that, we have to run experiments on the type of vehicles being considered to see what the big things the FAA needs to look at.”



### GERM-KILLING LIGHT BEING RESEARCHED FOR BIOFOULING SOLUTION

Florida Tech’s research project, “Using Ultraviolet Light for Improved Antifouling Performance on Ship Hulls & Niche Areas,” started in March under a three-year, \$315,000 grant from the Office of Naval Research. Florida Tech oceanography assistant professor Kelli Hunsucker is leading the project, which is examining the use of ultraviolet-c (UVC) light on ship hulls to prevent biofouling. Preliminary testing yielded positive results, which led Hunsucker and researchers to examine further work and, eventually, to the current grant.



### NEW RESEARCH MAY FIND KEY LINK IN HUMAN EVOLUTION

Florida Tech astrobiology assistant professor Manasvi Lingam analyzed temperature’s role in the body-to-brain ratio in his paper, “The Role of Body Temperature in Regulating Brain and Body Sizes in Hominin Evolution.” Through mathematical and computational models, Lingam found a body temperature change of 1-2 degrees Celsius (1.8-3.6 degrees Fahrenheit), possibly explaining why humans are able to have the body-to-brain ratio they do. This discovery may have a profound impact on further understanding the links between the evolution of our species.



## Going in the Clouds for Modeling Research

Florida Tech aerospace, physics and space sciences program chair Csaba Palotai and his team of graduate students are focusing on numerical modeling of planetary atmospheres with his latest research grant, A New Tool for Studying Jupiter's Clouds, Storms and Vortices. The \$306,428 NASA-funded grant will help create accurate modeling of Jupiter and carry forward the longstanding goal of planetary atmosphere research to ultimately understand the processes that are driving the features that scientists observe.

For the last two decades, most of the work in this field has generally agreed that the energy release in large water storms is comparable to what Palotai and his team would expect the internal heat of Jupiter to be—but no one has modelled the cloud formation explicitly to show that these convective storms do indeed match the observed features. With this research, the team is analyzing if and/or how these water-based storms can form, their structure and whether they can contribute to the features that are observed on Jupiter.



## Getting Bacteria to Quiet Down

Bacteria communicate with one another using small signal molecules and sometimes change their behavior as a result. This process, known as quorum sensing, is used by some bacteria to “turn-on” an active infection lifestyle and pose a serious risk to human health.

A grant awarded to Florida Tech is looking at how to cut the lines of communication used in the bacteria's sickness-inducing plan.

The grant, titled “Combating Pseudomonas Virulence with Cyclodextrin-Based Artificial Enzymes.” The grant looks to silence bacterial communication by deploying a lampshade-shaped molecule called a cyclodextrin to sequester or trap the signal molecules. Using an email analogy, the cyclodextrin molecules essentially filter the messages to a folder where they likely wouldn't be seen by their intended recipient.

The grant comes as part of a larger research effort involving biomedical and chemical engineering sciences Ph.D. candidate Eric Ziegler, biomedical and chemical engineering sciences/ocean engineering and marine sciences associate professor Andrew Palmer and biomedical and chemical engineering sciences associate professor Alan Brown.

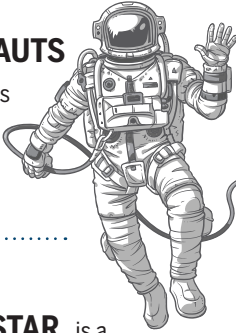
## ABECEDARY OF

# OUTER SPACE

Space. It's known as the final frontier, it's approximately 13.8 billion years old, and it contains over a sextillion (1,000,000,000,000,000,000) stars that have been many iPhone backgrounds. It's also a place that inspired the founding of Florida Tech and is still the root of much university research today. Read on to learn more about outer space.

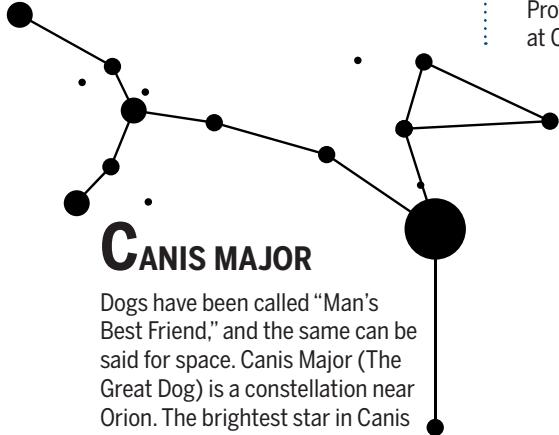
## ASTRONAUTS

Florida Tech has five of them among our alumni ranks.



**EXOPLANETS** are planets that orbit around other stars. One way researchers look for exoplanets is to look for planets that have stars that don't orbit perfectly around its center, or wobble. NASA has discovered 4,197 exoplanets.

**BINARY STAR** is a star system consisting of two stars orbiting around their common barycenter. Systems of two or more stars are called multiple star systems.

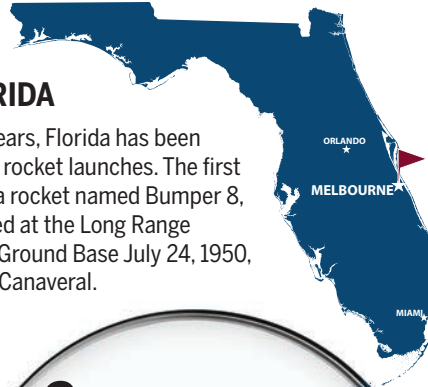


## CANIS MAJOR

Dogs have been called "Man's Best Friend," and the same can be said for space. Canis Major (The Great Dog) is a constellation near Orion. The brightest star in Canis Major (and the brightest star in the sky) is Sirius, also known as the dog star. Canis Major is one of the constellation Orion's hunting dogs (together with Canis Minor).

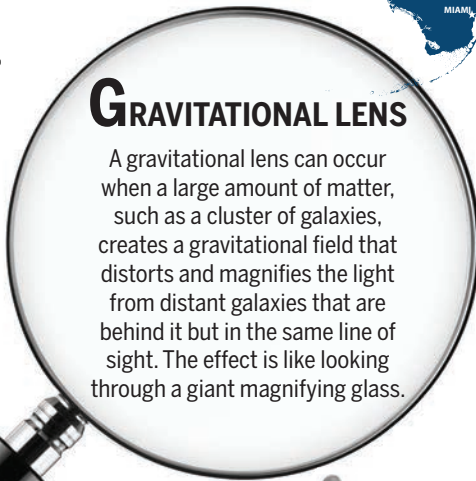
## FLORIDA

For 70 years, Florida has been home to rocket launches. The first launch, a rocket named Bumper 8, happened at the Long Range Proving Ground Base July 24, 1950, at Cape Canaveral.



## GRAVITATIONAL LENS

A gravitational lens can occur when a large amount of matter, such as a cluster of galaxies, creates a gravitational field that distorts and magnifies the light from distant galaxies that are behind it but in the same line of sight. The effect is like looking through a giant magnifying glass.



## HUBBLE SPACE TELESCOPE

Launched into low-Earth orbit in 1990, the Hubble Space Telescope is the first major optical telescope to be placed in space. Florida Tech aerospace professor Eric Perlman has used the telescope for research of high-energy flows of matter and radiation.



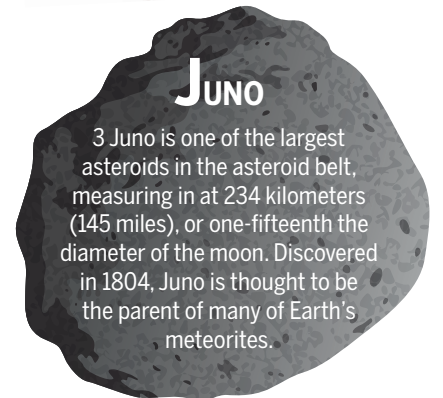
## INTERNATIONAL SPACE STATION (ISS)

This multinational station facilitates research in a space environment. In 2017, a charge injection device (CID) from Florida Tech that helps capture the dim light from planets around very bright stars was sent to the ISS. Installed on a platform outside the space station, the CID was put through its paces for up to six months.



## JUNO

3 Juno is one of the largest asteroids in the asteroid belt, measuring in at 234 kilometers (145 miles), or one-fifteenth the diameter of the moon. Discovered in 1804, Juno is thought to be the parent of many of Earth's meteorites.



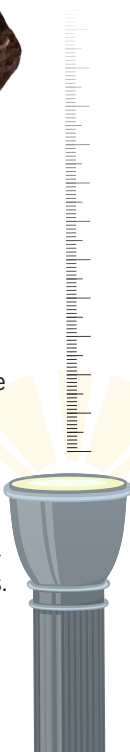
## KEUPER, JEROME

With 37 cents and a dream, Jerome Keuper founded Brevard Engineering College in 1958. Now Florida Tech, the university has become synonymous with space.



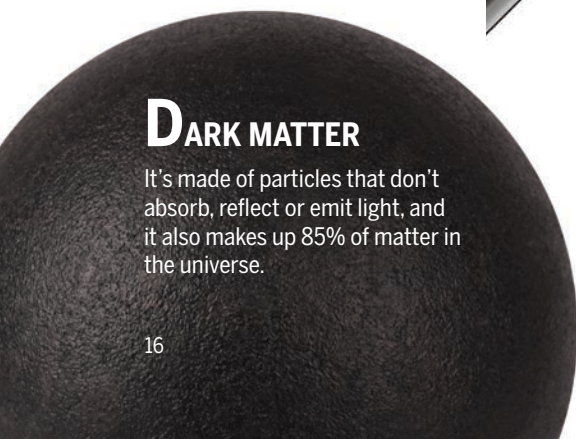
## LIGHT-YEAR

A light-year is the distance light travels in one Earth year. To find the distance of a light year, you multiply the speed of light (670,616,629 mph) by the number of hours in a year (8,766). Your answer? One light-year is 5,878,625,370,000 miles.



## DARK MATTER

It's made of particles that don't absorb, reflect or emit light, and it also makes up 85% of matter in the universe.





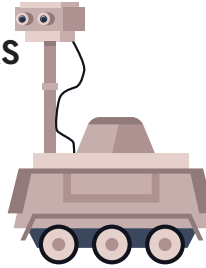
# MARS



The Aldrin Space Institute at Florida Tech was created to advance space exploration and development toward the goal of establishing and sustaining a permanent human presence on Mars and maintaining the scientific and technical legacy of Buzz Aldrin.

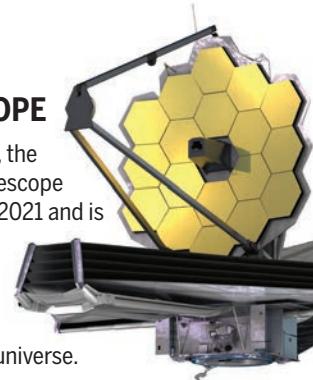
# ROCKETS, ROBOTS & ROVERS

All three have been instrumental in furthering our understanding of our solar system, plus they're just cool.



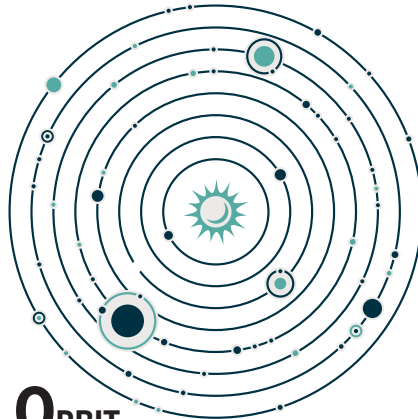
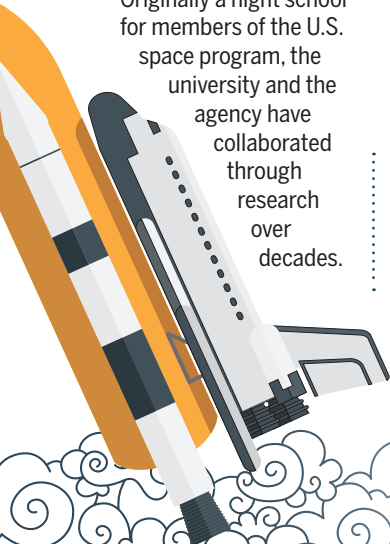
# WEBB TELESCOPE

Succeeding the Hubble, the James Webb Space Telescope will launch in October 2021 and is optimized for infrared wavelengths, with the goal of finding the first galaxies that formed in the early universe.



# NASA

Just like Florida Tech, NASA was founded in the fall of 1958. Originally a night school for members of the U.S. space program, the university and the agency have collaborated through research over decades.



# SOLAR SYSTEM

While we talk about ours a lot, we're not the only one. Astronomers have found over 500 solar systems. It's not only a small world, it's a small universe.

# ORBIT

Honoring our space legacy, Florida Tech's logo and seal feature orbiting elements.

# TRAPEZIUM

The trapezium is an open cluster of young stars, protostars, gas and dust in the Orion Nebula that feature four stars forming a trapezium.



# URSA MAJOR

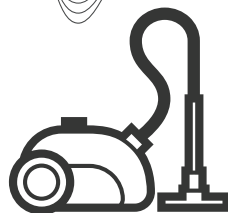
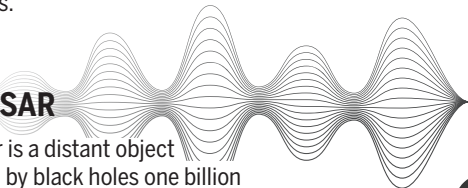
Also, known of as the Great Bear, the constellation that was thought by the ancient Romans to resemble a great bear. The seven stars in the bear's hindquarters and tail form what we know as the Big Dipper.

# PROTOPLANET

A protoplanet is a whirling cloud of gas or dust that becomes a planet by condensation during formation of a solar system. The objects are around the size of our moon, and it is believed that as they grew to become planets, parts of them melted due to radioactivity, gravitational influences and collisions.

# QUASAR

A quasar is a distant object powered by black holes one billion times as massive as the sun. While the name is short for quasi-stellar radio sources, only 10% of quasars emit strong radio waves, according to the National Astronomical Observatory of Japan.



# VACUUM

Much different from the ones David Orek created, the vacuum in space has such a low pressure that any particles in the space do not affect any processes carried on.

# SPACE-X

Their full name is Space Exploration Technologies Corp., but you probably know them as SpaceX. Founded in 2002, SpaceX has emerged as the top rocket and spacecraft developer, had a successful human space launch in March 2020 and is the employer of Panthers aplenty, like **JOE BUSSENGER '13**, senior manager, launch and recovery operations.



# YELLOW DWARF

The type of star our sun is.



# ZENITH

Last and most powerful, the point in the sky or celestial sphere directly above an observer.











As Florida Tech returns to face-to-face instruction, we take a look at the changes on campus and the potential for some alterations to remain long after the pandemic.

**T**he scene across the Florida Tech campus looks as one would expect at a university. Students are moving between classes, skateboarding, biking and walking. Some are lounging on the green spaces, clustered in small groups. Groundskeepers tend to the verdant landscaping.

But life at Florida Tech, as is the case for many universities, is quite different from how it may appear. Those same students who move around the campus have face coverings on. There are signs everywhere about social distancing. There are deeper changes, as well. The first semester of in-person classes amid the coronavirus pandemic has led to some significant alterations—and some may end up outlasting this period of viral uncertainty.



## The Student Perspective

**MELANIE MATOS** '20 graduated earlier this year with a bachelor's degree in chemical engineering and is pursuing her master's degree in that field. Campus life now is different than it was during her undergraduate years, starting with seeing fewer students walking around campus. From an education standpoint, there initially was a learning curve, she said, not only for the students, but for professors as well. They all had to adjust to the technological requirements of in-person and online classes.

Matos sees positive aspects of the adjusted learning experience. She believes introverted students are having a better handle on school due to changes to the campus experience, and immunocompromised students, such as herself, are able to have a safer educational environment. Florida Tech's online option has also given greater opportunities for those who cannot make it to a classroom.

Matos, who lives on campus, noted the differences in residential life under the university's new safety protocols.

The social aspect of residence life has changed—social distancing means less time with groups of her friends; she is not participating in organizations

that helped keep her busy as an undergrad, and there are fewer dinners out or drinks at the bar. But these shifts in human interaction have produced welcome, personal touches in this unique era, such as the residence assistant who has alarms in her phone to remind her to text residents at noon and 6 p.m. to make sure they've eaten lunch and dinner.

This streamlining of social interaction has another benefit beyond minimizing risk, Matos said: a greater focus on her studies as she works toward that master's degree.

"It keeps me home a lot more, and then when I'm sitting at home, I'm like, 'I should be doing something, because I have all this time and it feels wrong to just sit around and do nothing all the time,'" Matos said. "So, I feel like I have been a better student for it. I was never a horrible student or anything, by any means, but I did my homework three days before the deadline. Now I do my homework two weeks before because I had nothing else to do."

Matos sees some value in considering keeping online and hybrid classes beyond the pandemic. Similar to the discussion of working from home and the flexibility that provides, distance learning is something she believes has ongoing value.

"There's a million different ways to learn, and some people learn better visually, some people can see the text and PowerPoint slides and go from there and talk to the professor when necessary, and I think it's really important because there are people I know that can't make it to class every day," Matos said.

"It's really awesome to see it is feasible to have classes online with the only difference being it takes professors maybe an extra two minutes to start up Zoom and make sure they're recording," she continued. "Those two minutes to help dozens, if not hundreds of students on this campus would be awesome to see going forward."





## A Focus on Communication

Florida Tech's Pandemic Response Team—formed this spring to help develop plans for classes, dining, housing, residence life, security and facilities in the COVID-19 era—continues to meet, adjusting and updating as needed. Through flexible measures that have been spurred by communicating with students, faculty and staff, Florida Tech has been able to provide a safe campus environment.

Krishna Patel, director of student wellness and programming, serves as the school's COVID-19 case manager. Patel's role streamlines a process that could become cumbersome with multiple areas involved by serving as a key link between university departments.

For Bino Campanini, chair, Florida Tech Pandemic Response Team, another vital part of the university's success in maintaining a safe campus has been those the administration has communicated with throughout this time: staff, faculty and students.

"Our faculty have really stepped up," Campanini said. "To go from a traditional model to being told in March you're going to go online, then after the summer you're going to be in the classroom, but some of your students are going to be remote—the faculty has done a good job."

He continued, "From an administration side, we have a deep admiration for our student body, and we feel like they've done an excellent job following the school's plans, guidelines and protocols. Our student body has done a great job. When I'm walking around campus, the kids have their mask on, even when they're outside."

## Adapting Labs

The innovative approaches Florida Tech brought to the classroom and campus experience extended to another challenging facet of the university experience: labs. A combination of guidelines, communication and adaptivity guided the process.

The university is limiting the number of students in group projects to five and requiring the use of face coverings and other safety guidelines. Scheduling was adjusted, including adding weekend access, to produce more lab time and additional sessions, often with help from graduate student assistants. Florida Tech also split current lecture/lab courses, allowing students to take lecture via remote access in fall and lab in spring. The school also has cleaning stations across campus, as well as disinfectants at each classroom teacher workstation, allowing faculty the ability to disinfect the area after each class.

For biomedical and chemical engineering assistant professor Toufiq Reza, the need to keep his program's research going to meet the deadlines of student graduation, while also reporting to funding agencies and submitting research proposals—and doing all of



## FLORIDA TECH SAFE

Florida Tech's Pandemic Response Committee, working collaboratively across campus units, developed the Return to Learn recommendations to facilitate the university's safe and efficient return to campus-based living and learning in the fall. Operations across campus—from the student experience to the work environment for faculty and staff—were evaluated for risk, assessed for opportunities and challenges, and modified to ensure the health and safety of all Panthers.

Central to this work was the development of the Florida Tech Safe initiative, an evaluation of the university's safety culture, establishment of a safety pledge and implementation of policies and procedures to mitigate the risk posed by COVID-19.

Key recommendations include:

- » Instituting daily wellness screenings to safely visit campus
- » Requiring face coverings in high-traffic areas and where social distancing cannot be observed
- » Communicating social distancing guidelines via signage and decals
- » Restricting public access to campus and requiring guests and visitors to gain clearance through the university's new welcome center
- » Increasing safety cleanings
- » Installing plexiglass barriers in high-volume areas
- » Establishing maximum attendance/allowance in buildings
- » Limiting dining to students only and housing to one student per bedroom, unless otherwise requested
- » Implementing new academic modifications, including changes to the fall break and policies for Thanksgiving travel

The university also developed a comprehensive plan for isolation and quarantine to monitor and support those who are sick or affected by COVID-19, including:

- » Leave and excused absence policies
- » Contact tracing and notification guidelines for roommates and guardians
- » Protocols for the continuity of education and research
- » Implementation strategies for safe housing and meal delivery
- » Risk matrix for other support services on campus

Daily wellness screenings for students, faculty and staff are facilitated via the Campus Clear COVID-19 symptom self-screening app.

*continued on page 22*

**“A class is a kind of community. The difference between a crowd and a community is that communities become aware of what helps one another. The pandemic has taught us that we have much to learn ... and that we need to be helpful to one another.”**

GORDON PATTERSON, HISTORIAN AND PROFESSOR

this while following pandemic protocols—has been a challenge. But he’s making it work.

After initially shutting down his lab for a couple of weeks during the spring, Reza and his team assessed how they could be productive while protecting the health and safety of their students. Enforcing mask use, marking doors for entrance

**“I see us becoming more and more efficient.”**

TOUFIQ REZA,  
ASSISTANT PROFESSOR

and exit only, having just three students work together at a time and other changes have allowed them to run the lab successfully.

The students in Reza’s program have also been vocal about what would be needed for them to feel safe in the lab. When Reza allowed students back into the building initially, he put together an action plan based on students’ safety requests. Currently, the students

limit the amount of time they’re in the lab by doing only experimental work in the building, then doing the publication and lab writing on their computers at home instead of using the ones in the facility.

As with student Melanie Matos, Reza sees some changes having staying power. He noted the use of Zoom and other teleconference tools to communicate and provide a hybrid learning experience, as well as stressing the importance of keeping a clean lab.

“We are learning these kinds of things, and I know we are supposed to learn it a long time ago, but these kinds of opportunity and challenges allow us to do it now,” Reza said. “I see us becoming more and more efficient.”

## History Hits Home

Gordon Patterson, a historian and professor in the School of Arts and Communication, used this pandemic as a learning experience starting in the spring. In March, as part of his Modern U.S. History course, his students wrote weekly journals comparing different aspects of the 1918–19 “Spanish flu” influenza pandemic, which killed 50 million people worldwide and over 675,000 in the United States, to the new coronavirus outbreak. While the assignments were initially met with apathy from the students, the virus’s impact on their lives would soon change their perspectives.

“I watched them go from this being a silly assignment to at least five of my students having had a grandfather, an uncle, a cousin, an aunt dead from this,” Patterson said. “That caused them to see how rapidly things can change, and that’s why I had them look at 1918 and 1919 in the context because I fear all of us will know someone who was touched by this disease. I hope what we have learned from this experience will help our community grow stronger.”

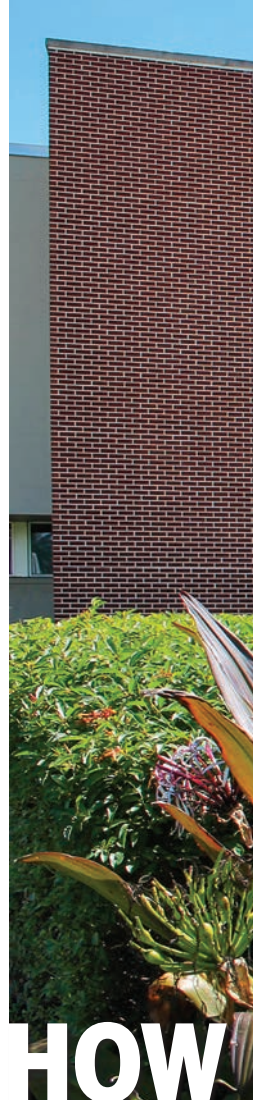
Students were asked to imagine that they were writing a journal that would be read by their future descendants. The journals demonstrated that Patterson’s students had learned a valuable lesson: Studying history is a critical element in responding to the challenges of the present. One student wrote to an imagined grandchild:

*Though this (journal) has obviously helped me, I suppose I hope it helps you in the future as well. If you struggle with depression or anxiety, I hope you read this and no longer feel alone. If you’ve been looking forward to something and it is cancelled, I truly hope my words bring you some form of solace. If you are looking for a way to express how you’re feeling, I hope this encourages you to get your thoughts out of your own head and onto paper. And most importantly, if you are in the midst of a pandemic, I hope this helps you to process.*

The stress and concern manifested in some of the journal entries can sometimes translate to class performance, Patterson noted, and has him thinking about how students are evaluated fairly. Some of the new pandemic adaptability in place across campus must also include being more aware of the stress around us, he said.

It also may mean reconsidering the traditional classroom dynamic.

“A class is a kind of community. The difference between a crowd and a community is that communities become aware of what helps one another. The traditional top-down model of education, the ‘sage on the stage,’ the wise woman or man standing in front of a classroom dispensing knowledge like Moses, needs to undergo a significant revision,” Patterson said. “I think that interaction will be more interrogatory, more interactive and more engaged. Professors need to listen as well as speak. The pandemic has taught us that we have much to learn and that we need—as citizens, students and, yes, professors—to be helpful to one another.”



HOW

BY THE NUMBERS





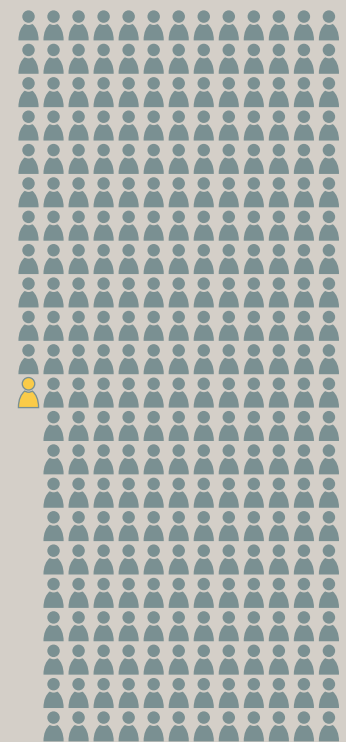
# DOES FLORIDA TECH COMPARE

The university has been highly successful at navigating the COVID-19 pandemic thanks to the diligence of students, faculty and staff at observing safety measures and prioritizing responsible practices. Here's a look at how Florida Tech compares to other institutions throughout the country.

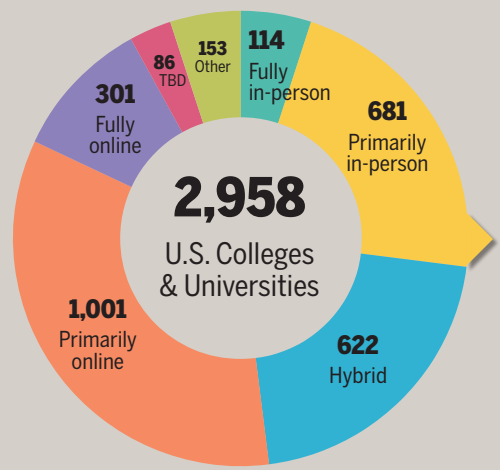
## ON COVID CASES

By mid-fall, a *New York Times* survey of more than 1,600 U.S. colleges and universities had revealed at least 130,000 cases of COVID-19 on campuses nationwide since the pandemic began. Of the 5,801 cases at 43 colleges and universities in Florida logged as of Oct. 1, only 21 connect to Florida Tech.

Source: [nytimes.com/interactive/2020/us/covid-college-cases-tracker.html](https://www.nytimes.com/interactive/2020/us/covid-college-cases-tracker.html)



Each icon represents approximately 21 people.



## ON ATTENDANCE FORMAT

Davidson College has traced the reopening plans of nearly 3,000 U.S. colleges and universities via its College Crisis Initiative dashboard. As of Oct. 1, Florida Tech is included among the 681 institutions conducting classes "primarily in person," with some courses online.

Source: [collegecrisis.shinyapps.io/dashboard](https://collegecrisis.shinyapps.io/dashboard)

# OPEN FOR BUSINESS

**As the Nathan M. Bisk College of Business celebrates 40 years, we look at the college's beginnings, connections and beyond.**

**By Karly Horn**

In 1980, gas cost \$1.19. Post-It notes, the Rubik's Cube and Pac-Man hit the market.

Hair was big; shoulders were padded; the tech boom was just beginning.

And in Melbourne, Florida, a visionary physicist's fledgling university was ready to broaden its academic offerings outside of the science and engineering realms.

Yes, 40 years ago, Florida Tech established the School of Management and Humanities, today, the Nathan M. Bisk College of Business.

Like the rest of the university, Florida Tech's business program was established to meet the needs created in and around Cape Canaveral by the burgeoning space program.

While science and mathematics courses were important, the business college's immediately impressive enrollment numbers were proof that professionals found development of their leadership, management and critical thinking skills equally valuable.

"I was there at the very beginning, and let me tell you, it was crazy," says Roger Manley, who worked for 33 years in the business college—starting before it was a college—and served as its second dean from 1988 to 1990.

The College of Business was built on core values of innovation, ethics, leadership and diversity.

And unlike trendy toys and hairstyles in *Vogue*, 40 years later, these values have never changed.

## Business at a "STEM" School

Jim Stoms, the first College of Business dean, was an engineer.

Manley, the second dean, was, too.

In fact, in the first several years, the business college's faculty, like much of the university's, consisted of almost entirely adjunct professors who also worked full time at the Cape and other local technology companies.

While some accreditation boards at the time thought this reflected negatively on the institution, Manley says, Florida Tech found that the structure provided students with the breadth of real-world experience to make the learning practical, relatable and applicable outside of the course's primary subject matter.

"Adjunct professors who had good academic credentials and actual life experience brought so much more into the classroom than somebody who went straight into teaching without any real-world experience to draw from," Manley says.

While full-time, academically qualified professors comprise the College of Business faculty today, the college continues its appreciation for professors with prior professional experience.

Abram Walton, business college professor and director of the Center for Innovation Management and Business Analytics, has worked in a variety of

industries and roles, including as an EMT and, later, a manager at Walmart Inc., before entering academia.

"Our faculty don't only come from the top of the academic sphere, but they have actual business experience," Walton says. "So, the difference with Florida Tech faculty isn't just their academic depth, but the breadth of their knowledge and their ability to apply it."

And just as the college was started to introduce a complementary set of business skills to STEM-minded students, today, it also does the reverse, teaching business students basic principles of technology beneficial to careers in any field.

The Raspberry Pi project, for example, incorporates weeks of workshops teaching students to program the Raspberry Pi, a small, single-board computer developed to help teach computer science basics, before placing them in groups to use the new skills to develop unique products with potential for business development.

"Currently, only 4% of all invention proposals developed are marketable," says College of Business Dean Ted Richardson. "The goal of the course is not only to develop an idea, but also to test its ability to generate revenue in the marketplace."

Likewise, each year, international business students participate in X-Culture, which groups 5,000-plus students from more than 100 universities in 45 countries into teams tasked with developing business strategies for actual global companies, using the latest technology tools to coordinate and communicate with their international teammates.

Group projects like these, as well as those in interdisciplinary courses, foster an innovative, entrepreneurial-minded atmosphere in which students build product concepts, prototypes, business plans and, most important, lifelong connections with peers in and out of their industry.

"You'd be hard-pressed to find any other business school that has its business students learning how to build and use even the simplest of technology programs, let alone bringing their business ideas to life in their very first year," Walton says. "But here, at Florida Tech, they have an opportunity to be



“Throughout its 40 years, the college has grown with the times, making the modern changes that universities need to make, while managing to keep its character as that small, personal university.”

STEVE THOMAS '88, COLLEGE OF BUSINESS ADVISORY BOARD PRESIDENT

part of some really awesome teams and engage with their engineering peers to actually bring their ideas to fruition.”

## Community Connections

In the College of Business, the goal has always been greater than a degree.

“The university was built to support engineers who were helping NASA put people into space,” Richardson says. “To enable that to happen, you also need business people who understand the leadership, accounting and finance. So, the College of Business started off as an extension of that mission.”

Today, the college strives to make an impact on its local community outside of just NASA.

In addition to internship, cooperative education and practicum programs, the business college has established three prestigious centers that conduct important research and provide business insights to the local community while enhancing students’ understandings and experiences through hands-on work.

The Center for Entrepreneurship and New Business Development is an all-inclusive center primarily focused on entrepreneurial growth on campus and in the community. The center houses the Momentum Student Business Incubator, which provides entrepreneurial-minded students with a physical location for their business ventures, as well as the guidance of community mentors and faculty advisors.

The Center for Innovation Management and Business Analytics is, essentially, a research and consulting center. Walton leads the center, serving as editor of the Journal for Innovation Professionals and overseeing the center’s involvement with the International Standards Organization (ISO).

“In the center, we are basically writing the world standards for innovation management systems, collaboratively with other countries, on what innovation management should be for companies,” Walton says.

Walton and graduate students working at the center also host various training

sessions for businesses in Brevard County and across the country and collaborate with College of Engineering and Science colleagues to merge the technological side of product development with their expertise in market analysis and innovation management.

“So, instead of creating a technology and then trying to find out if the market will use it, we try to find out what the market needs first and then try to match technology with those markets,” Richardson says.

The Center for Ethics and Leadership focuses on an oft-undervalued aspect of business that at Florida Tech is considered one of the most important.

“Aside from being the right thing to do, we’ve found that there is a financial component to being ethical,” Richardson says. “Most businesses with a good return on investment have a high degree of ethics with their customers and employees, and we’ve found that to be very important to companies’ growth.”

In addition to the research and discussion conducted at the center, the college also hosts a high school business ethics competition and a business industry ethics conference each year.

“Overall, I think the centers really help us progress in terms of providing great diversity, ethics and leadership across the business spectrum,” Richardson says.

Another integral part of the college and its community involvement is weVENTURE, its Small Business Administration-funded women’s business center that provides training, counseling, mentoring and technical assistance targeting local small businesses and entrepreneurs, both male and female.

“weVENTURE, in particular, has been very successful, recently receiving thousands of dollars in grant funding as a vital community resource for local small businesses struggling to deal with the ramifications of the COVID-19 crisis,” Richardson says.

## Vision for the Future

As any College of Business graduate will tell you, no business can succeed in the long term without evolving, and the same goes for the college itself.

In its 40 years, it has grown from a school to a full-service college. As such, it offers bachelor’s degrees in all areas of business, as well as the Master of Business Administration (MBA)—with more than 8,000 graduates worldwide—an innovative master’s degree in accounting and financial forensics and, most recently, a Doctor of Business Administration (DBA).

Most important, it is constantly adding new courses and cutting-edge degree programs in response to ever-changing industry needs.

“Instead of being behind the market, in terms of what people are doing in business, we want to be ahead of the market and able to attack it,” Richardson says. “And that’s a goal that requires constant effort.”

One such effort is the creation and continuous development of the College of Business Advisory Board, consisting of about 40 senior community members, local business leaders and alumni, who work with faculty and staff to cultivate both a vision for the college and a plan to execute it.

“Throughout its 40 years, the college has grown with the times, making the modern changes that universities need to make, while managing to keep its character as that small, personal university,” says advisory board president **STEVE THOMAS '88**. “And that’s what we aim to continue.”

The work is far from done. On the horizon, the college seeks further accreditation, increased enrollment, more degree programs, more mentorship opportunities and more recognition for the prestigious institution that, in just 40 years, it has become.

“When people leave, we want them to think about their experience here and how that experience has enhanced their critical thinking, their communication, their life,” Richardson says. “We hope that somehow, this university has touched them in a way that motivated them to try, to succeed and to help somebody else. That is—and always has been—our goal.”



# **AGENTS OF CHANGE**

**By Ryan Randall**

**Florida Tech is  
addressing issues  
of RACISM and  
INCLUSIVITY  
through a new  
curriculum,  
new initiatives  
and open  
communication.**



May 25, 2020. Memorial Day.

A holiday that honors the men and women lost while serving the military would be, for this year and likely many to come, remembered for another loss—one that has echoed across the United States.

That Monday, George Floyd, an African American, was killed during an arrest after allegedly passing a counterfeit \$20 bill in Minneapolis. A white police officer, Derek Chauvin, knelt on Floyd's neck for eight minutes and forty-six seconds.

Floyd's death, sadly, was not an outlier.

Two months prior, on March 13, Breonna Taylor, an African American emergency medical technician, was fatally shot by Louisville police officers after they executed a no-knock search warrant at her home, the wrong location. And two

months before that, on Feb. 23, Ahmaud Arbery, a 25-year old African American, was fatally shot near Brunswick in Glynn County, Georgia, where he had been jogging in a neighborhood.

Though Arbery and Taylor's deaths happened earlier, Floyd's death was the catalyst for protests around the country, and conversations on race, diversity and equity have been reignited.



### **Florida Tech felt that spark.**

It helped illuminate just how important education is for those who are carrying on those conversations now and who will someday soon be leading the charge forward into a changed society. And it spurred action that is reshaping what students will learn about the world around them.

*continued on page 28*

continued from page 27

## Building a Foundation

Since Furaha Merritt, a senior information systems major, came to Florida Tech from her hometown of Atlanta in 2016, the international diversity of the campus and the academic rigor of classes—things she looked for as she considered universities to attend—have provided a positive college experience. However, early on Merritt noticed the political climate created by certain events, such as the Ferguson, Missouri, protests over the police shooting of an African American man and the 2016 presidential election, was far different outside campus than on it.

“While you’re on campus you don’t necessarily have to worry about too much, but when you step off campus to go to the grocery store, or you’re in the community, the mall or downtown, it’s back in your face again,” Merritt said. “It’s kind of hard to be detached from these things when you’re directly impacted by it.”

Merritt also noticed she was often the only Black person in her classes, and sometimes the only female. She heard of similar experiences from other African American students. While there were clubs such as the Caribbean Student Association and the African Student Association, Merritt and others felt the absence of something that showcased their particular culture and experiences.

Guided by that desire and the goal of creating an organization that fostered a sense of family and community, Merritt helped found Florida Tech’s first Black Student Union (BSU) in August 2017. The union has 60 members, and some of their work has included packaging meals for families around the world, reading to at-risk youth for Black History Month and mentoring youth through after-school programs.

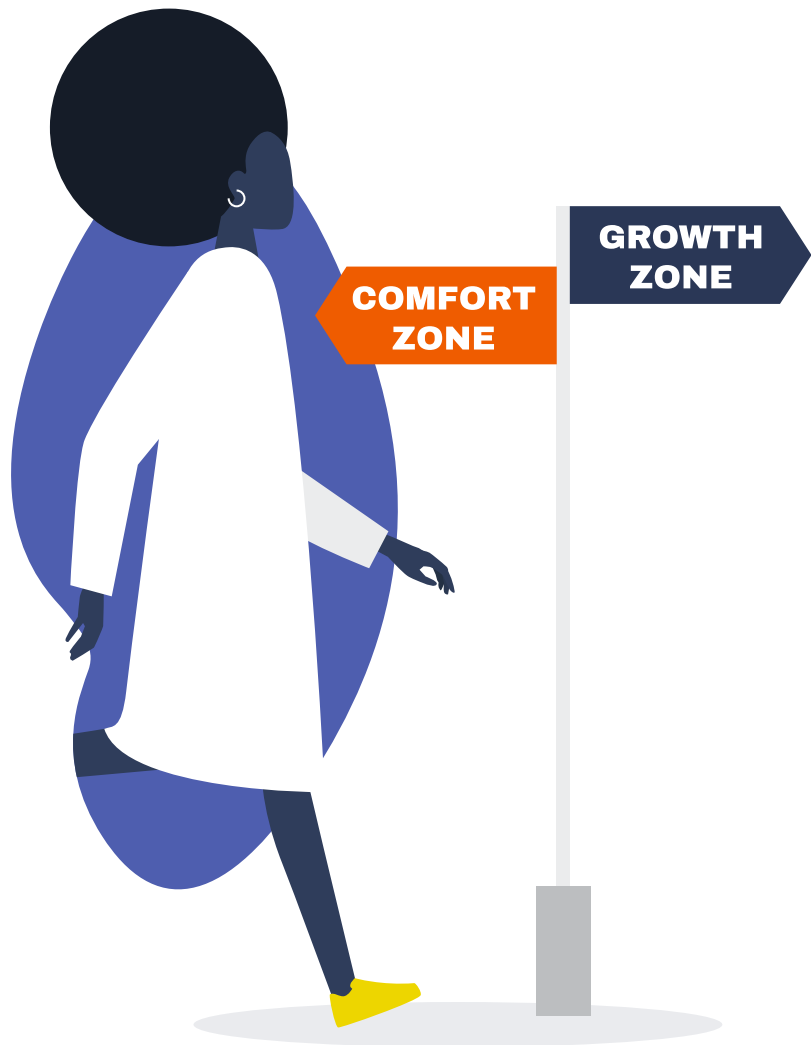
Merritt’s plan for the BSU is to use its growing impact to enact longer-term goals that will outlast any individual union leader. That’s what led members to approach Florida Tech officials about creating an African American Studies major. The first step in that process has come to fruition: the launch of an African American Studies minor program anchored by a new class that debuted this fall, Modern African American Studies.

To Merritt, the course is an opportunity for students to learn more about Black history and better understand the systemic, long-established issues that continue to affect the nation.

“I think this education is very important because, at least at the very minimum, you can’t say you did not know.

“Without the context or history, decisions for the future cannot be made. There’s a question of how much people don’t even know that they don’t know. There’s an old adage that a closed mind has no doors, and you can only really begin to teach, in earnest, when people are listening.”

DON HARRELL, MODERN AFRICAN AMERICAN STUDIES INSTRUCTOR





I think this course is going to fix the ‘Oh-I-did-not-know’ people,” she said. “After that, if they did not know and it strikes them, then they can take an educated stance and have some sympathy and empathy towards the right direction to actually help towards the fight, because we’re all going to have to fight to change the current systems.”

## A New Curriculum

Modern African American Studies is offered by Florida Tech’s School of Arts and Communication in the College of Psychology and Liberal Arts. Don Harrell, an African studies scholar, ethnomusicologist, folklorist and musician, has been hired to teach the class.

The class, Harrell said, will examine the African presence in the Americas pre-enslavement, the trans-Atlantic slave trade, the Emancipation Proclamation and the civil rights movement, as well as more current developments. Through providing information and developing perspectives, Harrell hopes students will be able to make decisions on and better understand how they figure in today’s racial dynamics.

“Without the context or history, decisions for the future cannot be made,” Harrell said. “There’s a question of how much people don’t even know that they don’t know. There’s an old adage that a closed mind has no doors, and you can only really begin to teach, in earnest, when people are listening. What has occurred is a critical point in time in our contemporary society where the listening capacity has been blown wide open, so the process has begun of informing oneself and making decisions as to how you figure in the paradigm.”

Harrell noted the similarities between today’s time and the civil rights era of the 1960s and how both present the importance of young people’s role in the changes going forward. He sees an opportunity for students take what they learn in the classroom out into the world.

“You’re trying to wake up the intellect and questioning and inquisitive mind and motivate folks to begin the process of gathering information that they can use successfully to make a positive difference in this society,” he said.

## A Better Understanding

In January 2015, Jordin Chandler delivered the keynote address at the presentation of Florida Tech’s annual

Pioneer Award, an honor named after Julius Montgomery, the school’s first African American student. Chandler, a Palm Bay High student at the time, spoke about the equitable progress made in society, while noting there was still much to be done. After Chandler’s speech, then-university President Anthony Catanese, in an unexpected gesture, offered Chandler a full-ride presidential scholarship to Florida Tech. Having grown up on University Boulevard near Florida Tech, Chandler was aware of the university’s caliber and academia. He accepted the surprise offer.

Chandler graduated in 2019 with a B.A. in humanities. Throughout his major, he studied aspects of civil rights, reconstruction and African American literature. His senior capstone project examined the desegregation and integration of Brevard Public Schools, focusing most closely on the former Stone High School (now Stone Middle School). His research found how incremental school desegregation and integration was in Brevard County.

Chandler’s educational experience taught him about African American studies that went beyond civil rights and slavery, and the alumnus looks at Florida Tech’s new class as a critical opportunity for students to develop a better understanding of these essential facets of American history.

“Tell us about Black Wall Street,” Chandler said. “Tell us about some of those pioneers and individuals that truly paved the way, such as the Morrill Land-Grant Acts that led to the creation of agricultural colleges such as Florida A&M. That is an important part of our history and our essence and our being. Being able to educate other individuals on those topics is something that is very much needed in this present day and age.”

## Working Toward a Better Future

As it gets developed, the African American Studies minor will have interdisciplinary courses aimed at studying and fostering further understanding of the social, political, economic and cultural forces that impact the lives of Black people in the U.S. and those in the Caribbean, Africa and around the world.

The program is also part of a broader array of initiatives Florida Tech is rolling out for the campus community. There will be new educational opportunities within the university’s First

Year Experience and new diversity training for university employees.

In July, the university offered Let’s Talk: A Discussion of Race on Campus, led by President Dwayne McCay and moderated by attorney and community leader Kendall Moore. The meeting featured students and faculty sharing experiences on and off campus, as well as discussing what could be done to improve race relations on campus.

Going forward, Merritt and the Black Student Union would like to see a scholarship named after Julius Montgomery that could go to Black students. Merritt also noted she’d like to see more education on Montgomery, who paused his education and preserved Florida Tech (then called Brevard Engineering College) in 1958 by withdrawing so the school would not have to shut down under local school district regulations. Three years later, the school moved to a new property, and Montgomery re-enrolled.

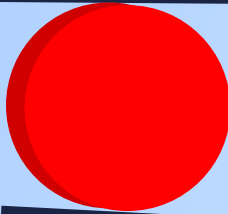
“That’s how you bring history into play and that’s how history isn’t just looked at as being so long ago,” Merritt said. “No, the school is only 60 years old. That’s relatively young compared to other universities.”

Merritt also wants to see Florida Tech more actively involved in the community and nearby schools such as University Park Elementary and Stone Middle School. Chandler agrees. As part of wanting to see an overall investment in the minority communities along University Boulevard, he would like to see the university partner with those schools, which have large minority populations or a high volume of students on free or discounted lunch.

The efforts at Florida Tech represent a start, and students and alumni are eager to see the progress continue. Yet these initial steps are important, because they show the university is paying attention to those striving for change.

“Furaha has been phenomenal in ensuring this is something the university provides to those students to make African Americans and students in general feel like, ‘Hey, I have a voice,’” Chandler said. “So, the strides that (Florida Tech President) Dr. (Dwayne) McCay, and (Senior Vice President, Student Life & Alumni Affairs) Bino Campanini, (School of Arts and Communication head) Bob Taylor, and (Assistant Vice President, Honors College) Dr. (Lisa) Perdigao have taken show that not only do they listen, but they hear us.”

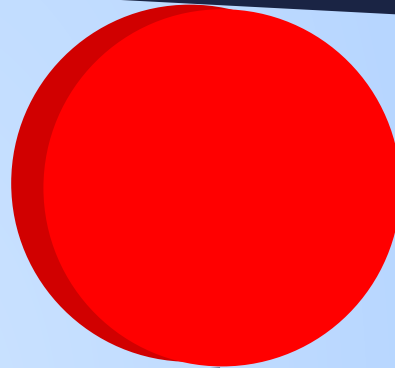
**A**



**BALANCING**



**ACT**



**Florida Tech researchers are analyzing better ways to evaluate college student-athletes by looking at balance performance before and after brain injuries.**

**By Ryan Randall**



Though growing in prominence over the last few years thanks to high-profile incidents involving professional football players and increased awareness and concern among amateur athletes and their families, concussions still remain somewhat of a health mystery.

In a critical step forward, research at Florida Tech is improving our understanding of how to better evaluate and diagnose concussions.

A research paper, “Change in Balance Performance Predicts Neurocognitive Dysfunction and Symptom Endorsement in Concussed College Athletes,” published this summer in *Archives of Clinical Neuropsychology* explores an athlete’s change in balance performance in relation with neurocognitive functioning or symptom endorsement when referred for possible concussion.

Florida Tech Ph.D. students Andrew DaCosta and Andrew Crane, former Florida Tech psychology professor Frank Webbe and university psychology associate professor Anthony LoGalbo put together the paper.

They found that in some instances, a decline in balance could indicate a more severe injury. Additionally, the research, which involved student-athletes from multiple sports, including lacrosse, football, soccer and basketball, highlighted the importance of conducting preseason or early baseline balance tests to better illuminate any changes that may appear in post-concussion testing.

## Finding a Baseline

Going off the hypothesis that the magnitude of change in balance performance from baseline to post-trauma would have unique predictive power in identifying acute clinical outcomes, the team looked at 68 Florida Tech student-athletes across multiple sports who completed the university’s standard preseason baseline testing and later suffered a concussion. The results showed that the degree that balance performance changed was a better predictor of neurocognitive dysfunction and endorsement of “balance problems” than post-trauma balance performance alone.

Analyzing the importance of post-concussion balance changes may lead to a greater focus on balance during initial baseline tests.

DaCosta said the research began with the consideration of balance from a recovery perspective, which led to

examining balance changes overall rather than just after a concussion. Researchers noticed that those athletes with bigger balance changes were having worse outcomes in the acute phase, something that was previously overlooked as scientists mostly focused on symptoms and problems with memory and reaction time.

The Florida Tech team also determined that athletes’ having poor balance did not always mean that they had a concussion. In working with the university’s training staff through concussion referrals, when athletes didn’t report balance issues but nevertheless had trouble balancing, the researchers pointed to the athlete likely having poor balance normally (This can be the case in taller athletes for example, due to their higher center of gravity). But the researchers also found that individuals who normally have great balance but demonstrate a notable decline in balance and report balance problems exhibited poorer post-concussion neurocognitive performance, potentially suggesting a more acute injury.

## An Ever-Changing Subject

The evolution of concussion research has changed rapidly in the last 10 years, primarily because of the inexact science behind it. What went from having your “bell rung” and recovering with “smelling salts” eventually led to being removed from competition and often being prescribed a remedy of sitting in a dark room until symptoms subsided. Current guidelines allow for most athletes to return to some of their normal daily routine and activity within a matter of days, and ultimately return to participation in sports after their symptoms resolve, their neurocognitive performance improves and they have been cleared by a healthcare professional.

While there isn’t an exact set of conditions that will cause or prevent concussions, Florida Tech has found value in baseline testing. While some universities do a student-athlete baseline test just once during their four years at the school, Florida Tech’s standard preseason test is done annually.

“What our research lends some credence to is without a baseline balance assessment, you would have less information when you’re making clinical decisions about a person having a concussion after their evaluation,” DaCosta said.

For Andrew Crane, who, like DaCosta, is in his third year in the Ph.D. program, the field is providing new opportunities to learn more about these frightening injuries.

“With concussions it can be really tricky because we don’t really know the answers yet, but that’s also the exciting part about it, too, diving into a field that’s relatively new and evolving constantly,” Crane said. “I feel like each week we see a different study being published that’s telling us something new about concussions.”

## Motivators and Drivers

Their research project also won a student poster award at the National Academy of Neuropsychology conference in November 2019. DaCosta originally saw the conference as another opportunity to learn about other research, so to win an award at the event was unexpected, so much so that he didn’t go to the early-morning award ceremony.

“I’m thinking, ‘Oh, it’s going to be some other big-time Ph.D. program, they always win the award, I’m not going to bother going,’” DaCosta recalled, laughing. “So later I get a text from my friend at the award ceremony, and he tells me we won. I’m like, ‘What?’”

The award played a key role in the team’s submitting the research to more selective and prestigious publications, such as *Archives of Clinical Neuropsychology*. It also validated DaCosta and Crane’s hard work and spurred them forward into future research.

“It’s motivating to get us to continue to do that kind of work,” Crane said. “To know that these organizations are recognizing the stuff that students are doing in these environments, it’s like, ‘Oh, we have to go to another conference and present.’ They really like what we’re doing.”



News from the desk of  
**Kim Bozik '87**

Florida Tech  
Alumni Association President

Hello all,

Once again, I welcome you back to another amazing issue of the alumni magazine. I sincerely hope that the extraordinary times we are all experiencing have not severely affected you and your families.

The alumni board has responded well to the situation, holding virtual meetings to keep business going and planning for the next epoch of alumni activities and goals. We have implemented new ideas to engage our community with virtual panels featuring alumni in space systems, women in aviation, applied behavior analysis and our international alumni sharing their experience and advice for success. Our alumni affairs team also launched a book club moderated by our professors, as well as trivia nights and other virtual events for our community to connect and keep active.

The completion of the Folliard Alumni Center marks an important milestone, and we are thrilled it is currently serving the university's academic pursuits. It was fun to watch the progress, despite the pandemic, on the live webcam. A beautiful job was done on its construction, and it will be a gem at the north entrance of the campus. Once we can resume normal operations, we will be having a proper opening with all the requisite pomp and circumstance. For now, the Folliard Alumni Center is operating as additional classroom space, and students will be well-versed with the newest building and hopefully will find their way back as alumni members in the not-too-distant future.

I look forward to seeing many Florida Tech friends at the gala that has been postponed until the spring. More to come on that soon.

Lastly, as has become a tradition in November, I invite you to participate in the Day of Giving on Nov. 17. As usual, the Day of Giving team has set up some awesome online fun while we show our support for Florida Tech. Let's all work together to make the end of the pandemic a renewed commitment to seeing Florida Tech thrive well into the future. Thank you.

Go Panthers!

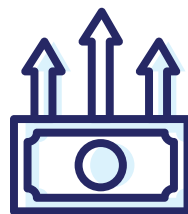
**YOUR ALUMNI ASSOCIATION OFFICERS**

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## Supporting Florida Tech's Student Emergency Fund

### SPECIAL DAY OF GIVING

In May, Florida Tech held its Special Day of Giving to help students and families impacted by the COVID-19 pandemic. Thousands of viewers tuned in throughout the day for live conversations with Florida Tech thought leaders, who shared insights about how the pandemic has impacted their area of expertise. Winston Scott spoke about his experiences in space, his knowledge on the future of NASA and how the agency is impacted by the current pandemic and answered questions from alumni viewers. Student Government Association members Jace Petrowski, Mike Porter and Jesse Llanos spoke about their experiences staying on campus for the remainder of the spring semester during the pandemic, as well as other Florida Tech memories. Jeff Fernandez, vice president of corporate partnerships and new business ventures for the New York Jets, spoke about how the NFL team is coping during the pandemic, gave insights on its virtual draft and shared why the team's partnership with Florida Tech is valuable to them and our students. In total, the event raised nearly \$84,000 for Panthers in need.



**\$83,531**

**Total Raised**



**201**

**Alumni Participants**



**22**

**Students Helped**



# Gatherings Go Virtual

When summer travel plans were interrupted, we had to pause going on the road for our alumni receptions—but that doesn't mean we couldn't keep in touch! We got creative to find new ways of coming together with book clubs, trivia nights, industry-specific alumni panels and more.

Whether our alumni needed a fun social occasion that didn't require changing out of pajamas, a networking event to keep up with industry news or just something to keep themselves occupied at home, we delivered. Check out some of our recent virtual events keeping Panthers connected!

### ALUMNI PANELS

Covering a variety of relevant and timely topics, alumni experts offer insight into their industries and share their expertise with fellow Panthers. Recent panels have included applied behavior analysis in the time of COVID-19, women in aviation and space systems education.

### BOOK CLUB

Ever wished you could relive your favorite college literature class ... but without all the tests and essays? Cue Florida Tech Book Club! Over the summer, current humanities professors led fellow Panthers in a bimonthly meetup of reading and discussion.



**219**  
members



**3**  
books

### TRIVIA NIGHTS

Panther pals are teaming up to challenge their Florida Tech friends and family in virtual trivia. Most of us are experts on topics like "Florida Tech," but can you maintain the throne when the theme is "Game of Thrones"?



**28**  
teams



**73**  
participants




**DAY OF GIVING**

**Our University. Our Future. Game On!**

**Come to play!**

**11.17.20**

**DAYOFGIVING.FIT.EDU**



1

**1 CHRISTOPHER CARLSON '73, '75 M.S.,** former roommate **DALE PIERCE '76** (right) and scion **PATRICK CARLSON '08** (left) indulged in all things snowy and black diamond the last two weeks of February at Steamboat Springs, Colorado. They said thanks to the Alumni House for providing stickers to show that Panthers can make it into the snow.

Extension, where she is responsible for administration, community development and public education in commercial and urban horticulture.



2

**BRIAN BENICEWICZ '76** was appointed head of science at HyPoint, a company developing zero-carbon-emission hydrogen fuel cell systems for air transportation and urban air mobility. He holds almost 50 issued U.S. patents.

**5 ROBERT CHIPLOCK '84 A.S., '85,** is doing double duty as a 767 international captain with UPS. He also owns and operates Lamai Ban Thai Kitchen restaurant with his wife in Greensboro, Georgia.



3



5

**2 CHARLES DAVIS '76,** who earned his B.S. in management science, has spent 40 years programming computers. He is enjoying traveling in his retirement, pictured with his wife, Pat, at Gornegrat, Switzerland, near the Matterhorn.

**PETER KOSSIS '88** joined U.S. Minerals as president in April 2020. Kossis has extensive experience managing national and international enterprises, having most recently served as plant manager for the cement slag operations in Chicago for LafargeHocim, the largest building materials supplier in the world. He earned his M.S. in chemical engineering.



4



6

**3 DOUGLAS HELTON '80 A.S., '82,** was appointed business development director of transportation systems for the federal civilian solutions mission area at Noblis. Noblis is a leading provider of science, technology and strategy services to the federal government. Helton has over two decades of experience in the aviation and unmanned aircraft systems industries. He earned his B.S. in air commerce/flight technology.

## 1990s

**6 THOMAS J. HOWLEY '90 M.S.,** who earned his master's degree in management, had his new historical fiction novel, *Wolf of Clontarf*, published by Moonshine Cove LLC. Howley's book tells the story leading up to the 15 years of the first millennium when the Irish finally succeeded in throwing out the Vikings invading their country.

## 1980s

**7 MARK CRAIG '90, '92 M.S.,** has further improved his CPU design that was originally done for a homework assignment at Florida Tech 33 years ago. This endeavor has resulted in his design successfully running in a field-programmable gate array (FPGA), whereby the FPGA becomes the CPU. Although now improved, the 33-year-old original version could also be put in an FPGA, proving something old can still be valid and useful today.



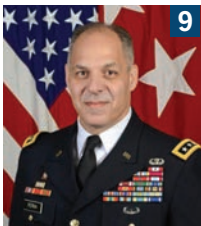
7



8

**4 STAN CLAY '83** has retired after 50 years in aviation. Stan was hired by Eastern Airlines in Miami after graduation, then held managerial roles at Airborne Express and PSA Airlines and headed several special projects with Airbus, American Airlines and BAE Systems. Though retired, he has many projects of his own lined up to keep him busy.

**8 SCOTT CAHALL '91, '93 M.S.,** is founder of the optical design and engineering firm Moondog Optics, which provides product development support for companies creating augmented reality, life science and mobile devices. He is also co-founder and CTO of Moondog Labs, which develops



9



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**CHRISTINE BREDEKAMP '85** has been nurturing western North Carolina agriculture since 1996. In April, she was named director of the Macon County Cooperative



gear for filmmakers all over the world. Their products were recently used by director Steven Soderbergh to shoot the 2019 feature film “High Flying Bird.”

**9 Gen. GUSTAVE PERNA '92** M.S., who earned his degree in logistics management, was named chief operating officer of Operation Warp Speed, a public-private partnership dedicated to fighting COVID-19. As the four-star general in charge of the U.S. Army Materiel Command, General Perna oversees the global supply chain and installation and materiel readiness for the U.S. Army, including more than 190,000 military, civilian and contract employees.

**ANGELLE LABORDE '93** M.S. was named as president and CEO of the Lexington Chamber and Visitors Center board of directors. A nationally recognized Certified Chamber Executive (CCE), LaBorde has provided more than a decade of dedicated service and leadership to the Greenwood, South Carolina, business community and has a quarter-century of experience in the chamber of commerce industry and the nonprofit sector.

**SYED KAZMI '93** M.S. holds a master’s degree in environmental engineering, specializing in water supply and sewerage. As executive engineer with Karachi Water and Sewerage Board, Kazmi has extensive experience in project management, financial administration and UNICEF–Pakistan.

**MUSTAFA ADIYAMAN '97** M.S. was recently appointed production manager for solid forms in the Luleburgaz site of Sanofi Pharmaceuticals. In this role, he

will be responsible for pharmaceutical dosage forms, manufacturing operations comprising powders, granules, tablets and capsules. Mustafa earned his Ph.D. in chemistry.

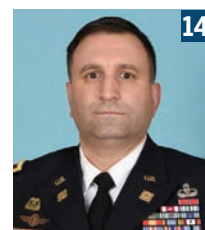
## 2000s

**10 GAIL M. CARTER '00**, author of *The Making of a Successful Business Woman*, was named a No. 1 Amazon bestseller. Carter’s book features 20 entrepreneurs who share stories of their journey to becoming business owners. Carter is the founder and CEO of LightShift360. She earned her B.S. in civil engineering at Florida Tech.

**11 AKSHAY KASHYAP '01**, who founded Gurugram-based auto-ancillary company Green Fuel Energy Solutions, has been building sustainable kits for the automobile industry since 2006. His company solves the problem of providing extremely reliable, zero-defect, safe components used for sustainable mobility for gas-fueled vehicles and now electric vehicles. Akshay earned his B.S. in mechanical engineering.

**12 JENS ITZENHÄUSER '03** M.S. recently took over a new role to support the further development of D-Fine’s finance expertise. He was appointed partner at D-Fine in 2016, a European consultancy focusing on analytical, quantitative and technical questions.

**ADITYA KAKRANIA '03** was recently appointed managing director in the Asia-Pacific and Middle East regions with Security Innovation. Kakrania started as a junior engineer with Security



Innovation upon graduating with a B.S. in computer science/software development.

**13 STEVE T. MAY '03** M.S. was appointed to the board of Ascend Federal Credit Union. May, a veteran operations and logistics professional, is director of marketing operations at Lynchburg Homeplace—Jack Daniel’s Distillery. He earned a master’s degree in management/management information science.

**PETER COHEN '07, '11** M.S., '13 Ph.D., is director of research at Blue Biofuels, recently listed on the OCMX. His work with Blue Biofuels involves the patent-pending cellulose-to-sugar process that

converts cellulose into biofuels and biodegradable bioplastics. Cohen has developed nine analytical methodologies, discovered anti-cancer compounds and has worked on trade secrets for major organizations, including NASA, Intel and the USDA. He earned his B.S. in biology, his M.S. in organic chemistry and his Ph.D. in analytical chemistry.

**14 CHRIS PAONE '08** M.S. was named brigade commander of the 10th Support Group, U.S. Army, in Okinawa, Japan, responsible for executing operational and contingency support to facilitate areas of operations in Japan and the Pacific area. He earned his M.S. in logistics management.

*continued on page 36*



The new chief technology officer for Magseis Fairfield, an industry leader in ocean bottom node technology, is **MARK ZAJAK '89**. He joined the company’s executive leadership team in June and now works from its corporate headquarters in Oslo, Norway. He is responsible for all aspects of the company’s manufacturing, engineering and product development activities.

He brings with him an extensive background in quality management and strategy, most recently from Schlumberger, the world’s largest oilfield services company. He has held field, technical, operations and leadership roles throughout his 30-year career.

He began at Western Geophysical as a quality control manager shortly after graduating from Florida Tech with a bachelor’s degree in oceanographic technology. He also holds an MBA in technology management from University of Phoenix.

**FAVORITE 90S JAM:**

“Tubthumping.” When you get knocked down, get up again.

**SKITTLES OR M&M’S?:** Skittles; have to eat them one color at a time.

**FICTIONAL CHARACTER YOU WISH WERE REAL:** Iron Man

**FAVORITE FLORIDA TECH MEMORY:** Oceanographic cruises on the RV *Osprey* with Dr. Trefry

continued from page 35

## 2010s

**15 CAMERON HOWARD** '10 was appointed the new manager of the Pierre Regional Airport in South Dakota. Howard most recently served as the administration manager at the Owensboro-Daviess County Regional Airport in Owensboro, Kentucky. Howard previously worked for Mid-America Jet and has a commercial pilot's license.

**16 SULTAN NASSER** '10 was recently promoted to western region corporate manager and AVP for Marsh & McLennan Companies located in Jeddah, Makkah, Saudi Arabia. Sultan earned his B.S. in business administration at Florida Tech.

**17 Lt. Col. AYO OLADIPOFANIYI** '10 M.S. assumed command of the Defense Logistics Agency Distribution in Anniston, Alabama, in a virtual change-of-command ceremony. He is a 2002

Distinguished Military Graduate from the Officer Candidate School at Fort Benning, Georgia, where he was commissioned into the Army as a 2nd Lt. in the Air Defense Artillery. Lt. Col. Oladipofaniyi earned his M.S. in management from Florida Tech.

**18 TABITHA BYRD**'s '11 A.A., '13, '16 MBA grandsons are proudly sporting their Panther Gear!

**19 STEVE DOTSON** '11 M.S. has been named chief information security officer for Acoustic, an innovator in marketing technologies. Dotson brings 20 years of experience in information security and risk, including public and private companies, government contractors and start-ups to create Acoustic's security program.

**20 BRIAN BOMSER** '12, '16 MBA, and **AMANDA BOMSER** '10, '11 M.S., welcomed their daughter Halley Celeste in December 2019. She is now future-Panther-ready in her Florida Tech onesie!

**21 MATTHEW DARTEZ** '14 M.S. was recently hired as director of dev-ops engineering for Kyriba Software. An engineer and technical leader of over 15 years, Dartez is focusing on new orchestration and container-based solutions for infrastructure engineering at the company. Dartez also teaches engineering part time at CalTech as a program advisor for their dev-ops and cloud programs.

**KAMAL ALJOHANI** '15 recently became a facility engineer for Amazon in Jeddah, Makkah, Saudi Arabia. Kamal credits studying mechanical engineering at Florida Tech with both professional and personal knowledge that led to his career growth.

**22 YANA EDWARDS** '15 M.S., who earned her master's degree in logistics management, was recognized as an MVP in the nonstandard missile systems program branch of the Army. She is a team lead for the U.S. Army Aviation & Missile

Command's Security Assistance Management Directorate.

**TRAVIS IOMMI** '16 M.S. joined KW Specialty Insurance Company as director of information technology. Iommi earned his master's degree in logistics management and, after a 12-year career in the U.S. Army, transitioned into project management roles with Distinguished Programs, Sapiens and Majesco before joining KW.

**23 CHRIS TOEPFER** '16 M.S. holds a new position as deputy operations officer for the U.S. Army, involved in the management of all Department of Defense cargo-transiting seaports in Northern Europe. Toepfer credits his master's degree in project management from Florida Tech as providing many of the tools required to succeed in this position.

**BENVENUTO AROKIASAMY** '17 M.S., who earned his master's degree in computer engineering, recently joined Qualcomm as a hardware engineer.

The Florida Keys' legendary coral reefs serve as a natural protector of the coastline and home to marine life of all sorts. As the new chief operating officer and dive safety officer at the Coral Restoration Foundation in Key Largo, Florida, **JONATHAN BERGERON** '97 now has the great privilege and responsibility of overseeing the renewal and rehabilitation of coral in these seven iconic reefs.

Bergeron began his career in the U.S. Army, where he was commissioned as a second lieutenant after being an ROTC cadet at Florida Tech. His Army career included work with special operations, airborne forces and conventional forces before retiring in 2015 as a major from his post as emergency manager for Ft. Wainwright, Alaska.

Following his military retirement, Bergeron, his wife **ANGELA CROLL BERGERON** '98 and their four daughters toured the country for a year and a half before settling in the Clearwater, Florida, area. Here, Bergeron served for three years as the dive safety manager at the Clearwater Marine Aquarium, home to the famous dolphins Winter and Hope, before joining the Coral Restoration Foundation in March.

In his new role, Bergeron looks forward to growing and maintaining coral nurseries, conducting outplanting operations, educating organizations worldwide on how to conduct similar operations and providing programs that educate thousands of guests about the endangered corals in the Keys.

Bergeron earned his bachelor's degree from Florida Tech in interdisciplinary science and also holds a master's degree from Central Michigan University, but he credits Florida Tech for instilling the passion that has driven his post-Army career.

"I took an elective at Florida Tech on a whim—open water scuba diving—and after a career in the military have become a professional diver. I have been able to combine my love for the ocean, leadership and a passion for diving into a second career. None of these things could have happened if I had not graduated from Florida Tech."



**SPIRIT ANIMAL:** Bald eagle

**WHAT WOULD YOU NAME YOUR BOAT IF YOU HAD ONE?:** The Black Pearl

**USELESS TALENT:** So many—but I will go with dad jokes

**WOULD YOU RATHER HAVE THE POWER OF INVISIBILITY OR FLIGHT?:** Flight, of course!

**FAVORITE FLORIDA TECH MEMORY?:** Water polo at Southgate

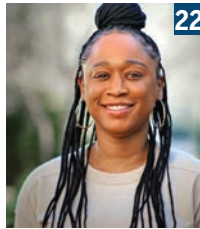




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**VERNELL HALL** '17 M.S. presented his recent research paper, "Examining an Information System Used to Process Employees Award: A Qualitative Study," at the 2020 Americans Conference on Information Systems in August. Hall has served in the U. S. Armed Forces for more than 20 years.

**24 ROXANNE DARIEN** '20 was recently named as one of the Air Force Outstanding Airmen of the Year. The Air Force selects 12 enlisted airmen from various career fields based on superior leadership, job performance and personal achievements. She is a

community health technician and graduated in July with a master's in management acquisition and contracting.

**25 JONATHAN PUGH** '20 is part of a team making deep-diving history. The Triton Submarines dive team sent astronaut/oceanographer Kathy Sullivan more than 35,000 feet below the surface of the Pacific Ocean. Sullivan, who was the first American woman to walk in space in 1984 is now the first woman to reach the deepest depth in the ocean.



The path after graduation does not lead most Florida Tech graduates to the global music business, but in true Panther spirit, **SARA TORABI** '14, '17 M.S., is undeterred by following the path less traveled.

Having finished her humanities-prelaw bachelor's degree and global strategic communication master's degree at Florida Tech, Torabi considered how to bridge the gap between the "creatives" and the "suits." She grew up a singer-songwriter and was very interested in international marketing, so this spurred the decision to pursue a second graduate degree in music business at NYU.

After exciting internships at the ASCAP Foundation and Sony Music Entertainment and completing her second master's degree in May, Torabi now works in sync licensing at Downtown Music Publishing (DMP) in New York City. Sync licensing refers to a license given from a musical work's owner to a licensee to use in a commercial, film, TV show or video game.

"Sync licensing is a crucial part of the music industry," she says. "Today, singers-songwriters not only have the opportunity to make decent money through a sync, but it is also how many artists are 'Shazam-ed' and discovered!"

Torabi pores through DMP's extensive music catalog to make sure the audio asset library is data-accurate and ready for licensing. "That requires listening to a lot of music—I can't lie; it's a fun job!"

The focus of her master's research was how emerging music markets can enhance their global communication strategies by applying lessons learned from the success of K-Pop, a global music genre that blends musical styles and cultural elements from around the world.

"I'm interested in global music markets, what makes them 'tick,' how they market internationally. My global strategic communication degree really equipped me with that marketing and communication knowledge that I needed to advance myself in this area of the music industry."

What's the next big thing in international music? Torabi is keeping her eye on the Indian music scene.

**ARE YOU MESSY OR TIDY:** Tidy, but I have "a drawer."

**WHAT WOULD YOU NAME YOUR BOAT IF YOU HAD ONE?:** Unsinkable II.

**USELESS TALENT:** I can finish off the lyrics of a song I've never heard before.

**WORLD'S BEST INVENTION IN YOUR OPINION:** A/C



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## IN MEMORIAM

**LASZLO BAKSAY**, a former Florida Tech professor in the department of physics and space sciences, passed away in January at age 74. From 1999 to 2006, Baksay was head of the department of physics and space sciences, and in 2008, he was named a fellow by the American Physical Society.

**YAHYA SHARAF-ELDEEN**, a professor of mechanical and aerospace engineering at Florida Tech for 30 years, passed away August 2019 at age 73. Sharaf-Eldeen helped shape countless students in the classroom and was a valued mentor and advisor to numerous capstone design project teams. He also participated in many engineering research projects.

**TERRENCE MURDOCK** '66 M.S., who enjoyed careers in mathematical services/communications and wrote books on topics in algebra and arithmetic, passed away in Tampa on March 31 at the age 92.

**GARRY P. BLEEKER** '70, who earned an M.S. in electrical engineering and retired from Harris Corp. and later the Sebastian post office, passed away in March.

**NANCY RYON** '79 M.S., '82 Ph.D., died on Feb. 2 after a long illness. She worked as an RN prior to earning her master's and Ph.D. degrees in psychology from Florida Tech. Ryon had a psychology practice in Melbourne, Florida.

**PAUL J. FOX** '83 A.S., '84, a MD11 captain with FedEx, died in April at age 58 after succumbing to complications associated with COVID-19.

**HARRY "STEVE" GRISHAM** '90 M.S. died in April. He earned his M.S. in contract and acquisition management and worked as a government contractor and later as an instructor.

**ANNE MARIE FORREST** '01 MBA, who worked as a registered dietician and later as

an entrepreneur operating her own successful business, passed away in June.

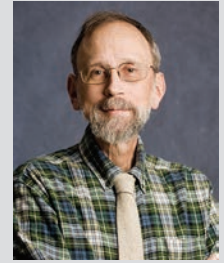
**JORDAN ROSE** '19, who was pursuing a degree in aviation meteorology with flight, passed away July 21 at age 29. Rose was a member of Florida Tech's Falcons Precision Flight Team, where he participated in ground events.

**STEVEN BLACK** passed away in April. He earned his commercial pilot license from Florida Tech and owned and operated Ottumwa Flying Service beginning in 1984. He was former president of the Iowa Aviation Business Association.

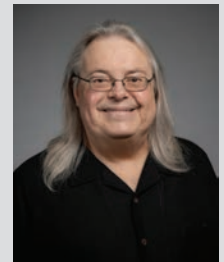
**ELDRED "WILL" MCCOY**, an off-campus student pursuing an MBA in finance with Florida Tech's online education program, passed away from complications from COVID-19 Sept. 10 at age 65.

**JANICE TUBELL**, who during a 16-year career at Florida Tech worked with key university leaders and helped reshape the campus itself with her involvement in a \$50 million grant from the F.W. Olin Foundation, passed away Aug. 10 in Brevard County, her home since 1979. She was 83.

**CLAYTON BAUM**, professor emeritus, passed away at the age of 74 on June 21. For 37 years, he taught in the department of chemistry, providing award-winning teaching and mentorship to scores of students. He published more than 40 peer-reviewed studies and research papers and was recognized repeatedly for his excellence in the classroom and beyond. In recognition of his teaching and mentoring, alumni, students and friends established the endowed J. Clayton Baum Scholarship, given to an outstanding chemistry major in his or her junior year based on academic standing and research achievements.



**JOSE MARTINEZ-DIAZ**, a visionary educator who established and led Florida Tech's applied behavior analysis programs to global prominence, passed away at the age of 70 on Sept. 21 from complications of diabetes. In 1998, Martinez-Diaz came to Florida Tech and founded the school's first ABA program, which he headed until December 2018. For years he taught nearly all of the required program courses. He founded Florida Tech's ABA online program and served as its original program director, developing most of the course material for the entire program. He was also involved in starting Florida Tech's Scott Center for Autism Treatment.



**GEORGE AUGUST MAUL**, the oceanographer and educator with a disarming smile and limitless curiosity who made a profound impact on marine and environmental science programs at Florida Tech as a department head, advocate, fundraiser and speaker, passed away Sept. 16. He was 82 and had cancer. Maul came to Florida Tech in 1994, and for the ensuing two decades, led the department of marine and environmental systems. Supervising 250 undergraduates and 15 faculty members in oceanography, environmental science, ocean engineering, earth remote sensing and meteorology wasn't enough for him.



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# Physics, Apparel, Fat Loss and Masks

Raj Sareen '04 transcends industry boundaries with innovative acuity and divergent applications

Opportunity is all around, if only you remember to keep your eyes open. **RAJ SAREEN** '04 may know this better than most, having used his technical knowledge and entrepreneurial vision to find solutions to problems he didn't know existed in the first place.

Sareen graduated from Florida Tech in 2004 with a bachelor's degree in space sciences before acquiring a master's degree in physics from San Francisco State University. After college, he joined his family's business, Tukatech, a design software and machinery company serving the fashion industry. Here, he learned all he could about running a business and apparel design and production.

This deviation from his astronomical collegiate experience is a perfect example of how a quality education enables one to transcend industry boundaries. Sareen's strong physics background helped drive the development of Tukatech's online size and fit prediction software—a disruptive technology for the apparel industry.

His work on 3D body scanning software spurred further ideas for Sareen's entrepreneurial spirit. Originally intending to help clothing manufacturers make better-fitting clothing, he wrote software to create a full-body camera from 21 repurposed Logitech cameras.

Before long, Microsoft Corp. released the Xbox Kinect, exactly what Sareen needed to improve his design. However, he soon received a cease and desist letter from Microsoft. Ever the persistent Panther, this roadblock

emboldened Sareen's resolve to forge ahead with his design's development, knowing he was on the right path.

His determination paid off in 2011 when Sareen co-founded Styku, which produces body-scanning machines that help users assess their body fat and set fat-loss goals. The machines are in gyms, research institutions and health centers in 30 countries worldwide.

Only a year later, Sareen received another message from Microsoft—this time, inviting him to be part of its Techstars-powered accelerator program, an exclusive three-month program for startups.

Sareen said, "Being selected as 1 of 11 companies, out of a pool of 500 companies, gave us instant credibility, press and access to resources that might otherwise have taken years to attain."

With these resources and his tenacious Panther spirit, Sareen has led Styku from a prototype of repurposed cameras to a startup now valued at \$30–\$50 million in under a decade.

"I never could have dreamed we would be talking about an eight-digit valuation," he said. "Sure, some big wins here or there helped us take massive steps forward. But the truth is, growing a company is a patient, slow process ... with the faith that the hard work, focus and persistence will lead to new heights."

With the COVID-19 pandemic calling attention to how risky underlying conditions like diabetes and heart disease can be, Styku is expanding its baseline health screening technology. "We've got some exciting technology on the horizon that can further



**CURRENT CITY:** Los Angeles

**FAMILY:** Wife, Khushboo; Children, Dilan, 1, and Sanaya, 4

**HOBBIES:** Guitar, singing and, recently, surfing

**FAVORITE FLORIDA TECH MEMORY:** That's easy. Winning my first gold medal at Florida Interstate Rowing Association championships my freshman year.

preventative care for the people who need it the most," Sareen said.

With three patents on his body scanning and 3D fitting work and several more pending, as well as proven success as an entrepreneur and inventor, Sareen began a new venture earlier this year: Remasque. Drawing on his apparel and textiles experience, he set out to create a face mask for firefighters that not only filtered out particulates but was comfortable.

The result was a mask made from bamboo—a sustainable, antibacterial fabric that fights moisture and odor two to three times better than cotton and is more breathable than most cotton and polyurethane versions. The patent-pending nanofiber filter blocks over 99% of particulates.

Now in the age of COVID-19, Remasque helps fight the pandemic's spread by making the reusable, washable masks available to consumers everywhere. The product was featured on the "Today" show in August, praised for its multi-layer protection.

Sharing the video via LinkedIn, Sareen said, "We've donated thousands to hospitals, gyms and schools in an effort to keep people safe."



## Pop Quiz!

Fall is synonymous with many things: Falling leaves, football and pumpkin spice lattes. It's also the time for the start of school, and what better way to celebrate the return of classes than with some quiz questions, courtesy of aerospace, physics and space sciences assistant professor David Harris?

The two questions are to test alumni familiarity with some mathematics questions. The first one, a Calc 2 question, would be something you might see on the beginning part of a final exam question. The second one, a moderate 2D kinematics problem, is worthy of a Physics 1 final. Could you tackle them today? Test your might, and find out. Check your answers on page 3.

1. Evaluate the following integral:

$$\int_0^3 6x^2 + 10x - 7 + \cos(4x) dx$$

2. From the roof of the Crawford Building, 21.0 meters above the ground, you throw a water balloon at 19.92 m/s exactly horizontally at the Olin Engineering Building, 36.0 meters south.

How far up the wall of Olin Engineering does the water balloon hit?