

FLORIDA TECH

M A G A Z I N E

WINTER 2021



The Quiet Impact

Panthers worldwide
are making a mark.

PLUS:

To The Stars

Initiative in the Water

A Long Journey for a New Home



In This Issue

Winter 2021 • Volume 29, Issue 3

CAMPUS NEWS

- President's Perspective . . . 4
- On Campus 5
- The Relentless 6
- Etc. 11
- Panther Athletics 12
- Research 14

FEATURES

- 16 A Long Journey for a New Home**
Florida Tech joins forces with the Brevard Zoo to re-home an endangered spider monkey.
- 18 The Quiet Impact**
Wherever you look, Panthers are there, driving the technology and processes that drive society.
- 24 To the Stars**
With a focus on program planning and control, Rich Ryan '88 is playing a key role in developing the next space telescope for NASA.
- 26 Initiative in the Water**
For decades, Florida Tech has worked to better understand the Indian River Lagoon. New research projects and a new building continue the focus on improving the overall health of the lagoon.

ANYTIME, ANYWHERE
[floridatech.edu/
magazine](http://floridatech.edu/magazine)



THE HEART OF SOUTH MELBOURNE

The Crawford Building peeks over the horizon, marking the location of the Florida Tech campus in the city vista from the top of the Melbourne causeway.

FLORIDA TECH MAGAZINE

floridatech.edu/magazine
PRESIDENT Dwayne McCay, Ph.D.
VICE PRESIDENT FOR COMMUNICATIONS AND CHIEF OF STAFF
Wes Sumner '18 DBA

Florida Tech Magazine is published three times a year by Florida Tech's Office of Communications and is distributed to over 85,000 readers.

ART DIRECTOR Christena Callahan '07 M.S.
EDITOR Ryan Randall
ASSOCIATE EDITOR Stephanie Herndon '07
ASSOCIATE EDITOR Adam Lowenstein
CONTRIBUTORS Cindy Berger, Christena Callahan, Stephanie Herndon, Karly Horn, Tom Kertscher, Jillian Leclerc, Ryan Randall, Daniel Supraner
PRODUCTION Kristie Kwong
WEB LAYOUT David Smith
CIRCULATION Alaena Wade-Meadows
PHOTOGRAPHY Dominic Agostini, Emily Almodovar Warner

Alumni Office

SENIOR VICE PRESIDENT OF STUDENT LIFE AND ALUMNI AFFAIRS AND EXECUTIVE DIRECTOR, ALUMNI ASSOCIATION
Bino Campanini '90, '92 MBA
321-674-8434, bcampanini@fit.edu
ASSISTANT VICE PRESIDENT OF ALUMNI AFFAIRS AND GIVING
Stephanie Bacon, 321-674-7198, sbacon@fit.edu
DIRECTOR OF ALUMNI MARKETING
Cindy Berger, 321-674-6141, cberger@fit.edu
ALUMNI ENGAGEMENT OFFICER
Jillian Leclerc, 321-674-6826, jleclerc@fit.edu

Have a Story Idea? magazine@fit.edu

Address Updates: Florida Tech, Office of Development Services, 150 W. University Blvd., Melbourne, FL 32901
advs@fit.edu

Unsubscribe: advs@fit.edu

ALUMNI NEWS

- 32 From the FTAA President
- 33 AlumNotes
- 38 In Memoriam
- 39 Alumni Profile: Sanjay Rishi '85 M.S.

CONNECT WITH US

-  /floridainstituteoftechnology
-  @floridatech
-  /floridatech
-  /FloridaTechAlumniAssociation
-  @alumnifittech
-  /fitechalumni



floridatech.edu

© Copyright 2021 by Florida Institute of Technology. All rights reserved. Reproduction by any means whole or in part without permission is prohibited.

For reprint information: 321-674-8963 or magazine@fit.edu



Florida Tech Magazine is printed on Sustainable Forestry Initiative (SFI)® certified paper.

Florida Institute of Technology is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award associate, baccalaureate, master's, education specialist and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097 or call 404-679-4500 for questions about the accreditation of Florida Institute of Technology. Florida Institute of Technology does not discriminate on the basis of race, color, religion, sex, national origin, genetic information, sexual orientation, gender identity, disability, protected veteran status or any other protected minority in the admission of students, administration of its educational policies, scholarship and loan programs, employment policies; and athletic or other university-sponsored programs or activities. Contact the Title IX coordinator at 321-674-8700.

PRESIDENT'S PERSPECTIVE

Dear Alumni and Friends,

We've made it to 2021, and while the COVID-19 challenges we've all faced since last year have not subsided, we begin a new year with refreshed hope and determination.

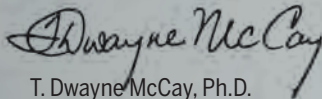
Most things in life that are worthwhile aren't easy. They require discipline, determination and commitment. Often that means hard work and extra effort. This pandemic is no different, as we all work together to stay safe and healthy, taking extra precautions and remaining diligent. Personal health is certainly worth that effort. Educational aspirations are worth it, too.

As this issue of *Florida Tech Magazine* showcases, from the seas to the skies, our alumni, students and professors are good global citizens who are working hard to make a positive difference. While the pandemic has changed the way we do many things, it has not squelched our passion for discovery, nor has it deterred our commitment to education and research.

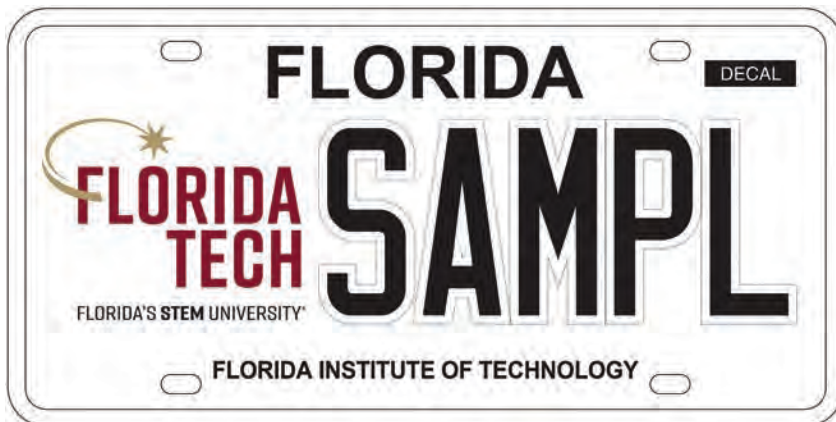
Challenges are often opportunities for innovation. Those innovations are what transform our world.

None of us can control what 2021 may bring, but we can control how we meet the challenges it presents. I look forward to meeting those challenges, together.

Sincerely,



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



REFRESH YOUR RIDE

Florida Tech's Panther license plate, first introduced in 2003, is getting an updated look. The new plate will be available in all 67 Florida counties later this year. Proceeds from sales will continue to benefit the university.



“

Our university has evolved by offering training in high-demand fields that provide rewarding, well-paid careers for our students, and we are continuing to invest and grow in high-potential areas.

—Rob Phebus, chairman of the board of trustees

University Breaks Ground on Health Sciences Research Center

In October, Florida Tech broke ground on its Health Sciences Research Center, an \$18 million structure to 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.

“Florida Tech has long been home to those who not only ‘dream,’ but those who ‘do,’” President Dwayne McCay said. “Our world needs both. We honor our commitment to the future with the addition of this important facility.”

The three-story, brick-clad building on the university's south campus Olin Quad will offer more than 61,000 square feet of space, with more than a third of that—22,300 square feet—dedicated to labs, classrooms and training space. Construction is scheduled to be complete no later than December 2021.

The building will feature stunning architectural and design elements, including a three-story atrium, glass walls throughout to enhance the open feel and engagement of users, an open courtyard and a café study lounge with coffee, grab-n-go foods and outdoor covered seating.

Key features within the center are expected to include state-of-the-art teaching laboratories in human anatomy, augmented and virtual reality teaching tools, and facilities for orthopedics, tissue studies and advanced computational simulations. Specialty equipment scheduled for use

includes an array of cutting-edge devices, such as a Raman microscope/spectrometer, virtual dissection tables, a tissue fatigue testing machine and high-performance modeling and simulation software.

The center will allow Florida Tech to double the size of the undergraduate biomedical engineering program to 300 full-time, on-campus students and increase the size of the undergraduate premedical program from 150 to 250 full-time, on-campus students.

“Our university has evolved by offering training in high-demand fields that provide rewarding, well-paid careers for our students, and we are continuing to invest and grow in high-potential areas,” said Rob Phebus, chairman of the Florida Tech board of trustees. “The state-of-the-art facility we broke ground on will greatly enhance our educational offerings in biomedical engineering, premed and health sciences research.”

With the premedical biomedical sciences program, the center can help Florida Tech respond to a massive expected shortage of doctors. The Association of American Medical Colleges reported in June 2020 that the United States will face a shortage of between 54,100 and 139,000 physicians by 2033 as current physicians retire and the number of older patients grows.

“Overall,” McCay said, “the new facility will enhance Florida Tech's capacity for education, research, social engagement and campus beautification.”

MARCO CARVALHO

On adapting the delivery of quality education during a pandemic

As the COVID-19 pandemic unfolded around the world and in the United States, universities everywhere were faced with unprecedented challenges requiring immediate action. For Florida Tech, there was never a question that our response would be driven by our relentless and uncompromising commitment to the safety of students, faculty and staff, and to the high-quality education and standards for which Florida Tech is known.

While multiple initiatives were taking place across the university to implement the safe campus vision set forth by President McCay, academics were no exception. We quickly recognized that with so many stresses, uncertainties and challenges facing our students it was fundamentally important to find a solution flexible enough to adjust to the continuing changes of the pandemic. Most importantly, we wanted to provide a breadth of options for students and faculty to remain engaged while maintaining their individual comfort levels.

Recognizing the state of the pandemic and the preference of our students to maintain the option of safe face-to-face education, we knew that we needed a different and bold plan. We determined that the best path forward was to safely offer all lecture and laboratory classes face-to-face, while simultaneously providing synchronous remote access to the same lectures. We also knew this was no small task, especially given the extremely short time available for implementation, but we were certain it could be achieved. We were right.

Our world-class faculty immediately and voluntarily came together in daily meetings with the academic administration to provide critical guidance and leadership with very creative approaches to help implement our vision. Several new spaces across campus were quickly identified and modified to provide additional classrooms that would comply

“

Florida Tech responded to the dark shadow of the COVID-19 crisis by shining an even brighter light on the question of how we can best educate and serve our students while being even more sensitive and understanding of their needs.

”

.....

Marco Carvalho
*Executive Vice President
and Provost*

with social distancing requirements and safe access for both faculty and students. Our faculty and academic administration joined our Pandemic Response Team to design and implement in-class safety protocols that required the use of masks, social distancing and low-density laboratory activities.

Faculty and academic administrators collaborated to adjust the academic calendar, re-plan class schedules and communicate options to students. Exams were modified to accommodate both in-person and remote delivery with proctoring systems implemented. Special committee sessions were called to quickly draft, review and approve exceptions to some academic policies for the benefit of our students.

In parallel, our Instructional Design and Facilities teams worked tirelessly to upgrade communication infrastructures and equip every classroom and laboratory for synchronous remote access. Cameras, displays and tablets were acquired and integrated with our instructional systems to allow students seamless participation in classes either in person or remotely from the comfort of the residence halls or their homes. The new technology required the design and delivery of extensive training sessions for our faculty and support staff, which took place in parallel as we prepared for students to arrive.

All these efforts occurred over a few weeks while our faculty and staff were also addressing their own personal pandemic challenges. Thanks primarily to the passion and selfless dedication of our faculty and staff, we achieved what we set out to do, and Florida Tech safely and successfully moved to the new delivery mode as planned. Our students returned to campus and seamlessly adjusted their attendance mode to accommodate their individual preferences and comfort levels. The campus remained safe, with no COVID-19 infections traced back to our classrooms or laboratories. The academic results are still being evaluated

Keys to Success

Safe Spaces

To maintain the safety and effectiveness of in-person classes during the pandemic, it is critically important to ensure both the physical layout of the classroom and the access to the classroom are carefully considered. We have secured and repurposed larger spaces on our campus to allow adequate social distancing between students and faculty. Spaces must also support technology for remote access, which often requires the deployment of temporary audio, video and communication infrastructure.

Multiple Modes

It is important to recognize that individual students and faculty may be experiencing different personal challenges requiring special accommodations. These personal situations are likely to change through the course of the term. We have ensured that our face-to-face classrooms provide simultaneous modes for delivery, including both synchronous and asynchronous remote access to the same classroom material. This flexibility allows students to remain engaged with the class even in situations that may require a temporary change in their preferred delivery mode.

Frequent and Open Communications

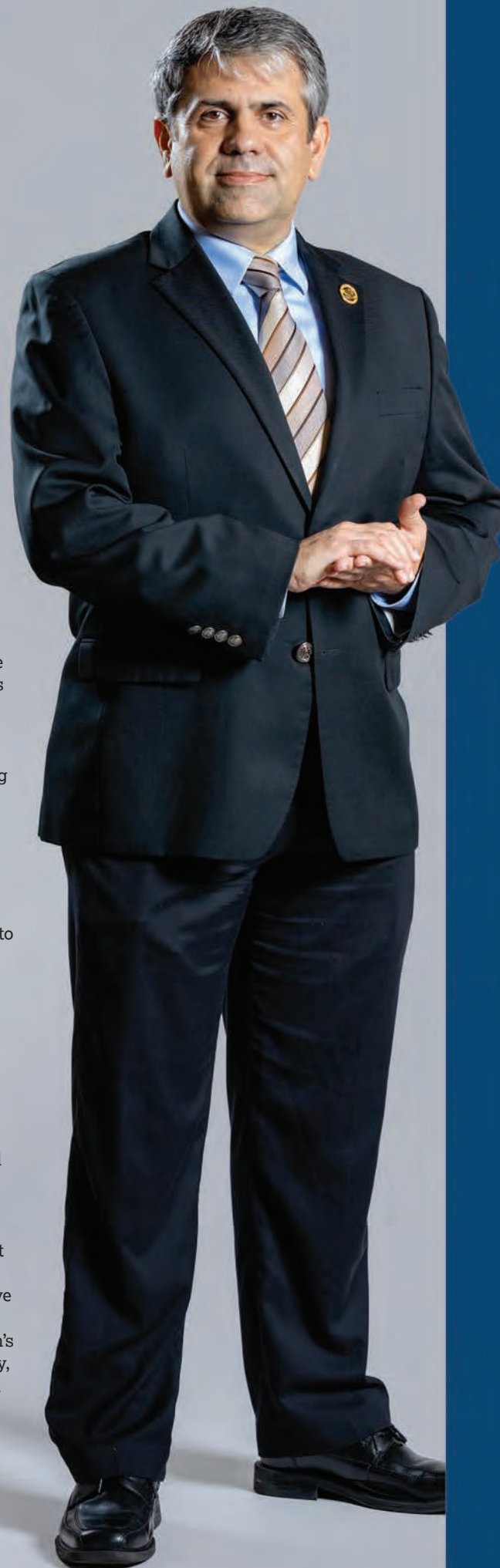
The fear, stress and uncertainty that accompany these kinds of situations are possibly the biggest impediments to success. We know we can resolve virtually any situation when we come together as a team. Maintaining frequent, open and honest communication with everyone enables all to understand the challenges and their implications so they may contribute to the solution. Our Florida Tech family has once again shown we can unite as Panthers to take on any challenge.

but are very encouraging. Our approach for in-person classes with a remote delivery option was very successful for the fall 2020 term and has been maintained for spring 2021.

We know that one day the pandemic will subside and life will return to normal. However, that does not mean higher education needs to return to prepandemic normal. Florida Tech responded to the dark shadow of the COVID-19 crisis by shining an even brighter light on the question of how we can best educate and serve our students while being even more sensitive and understanding of their needs. The new modes of communicating, sharing of ideas and enhanced methods of learning that we implemented have resulted in improved learning experiences for students and a new sense of togetherness. The world indeed may go back to a pre-COVID routine, but enhancements to the hallmark of the Florida Tech experience are only going to move forward.

Although our campus community takes great pride in our safety, health, innovative spirit and academic record as the pandemic continues to persist, we remain vigilant and ready for new challenges. As an educator, I am also delighted to report that we have openly shared our approaches, strategies and tactics for navigating this unprecedented time with other colleges and universities in Florida and around the United States for the benefit of all students, regardless of where they study. We remain steadfast in our support of tolerance, inclusivity, open communication and the constructive sharing of ideas and innovations, which have always been the key to Florida Tech's success—not only as a leading university, but as a leader in higher education itself.

Please remain safe.



Florida Tech Team Exhibits at Leading Space Industry Event

Florida Tech's ORION Lab was selected as one of the 178 top participating teams from the AFWERX Space Challenge initiative to exhibit at EngageSpace, a virtual two-day event in September.

The EngageSpace event featured opportunities to connect, educate and innovate with other like-minded attendees, industry leaders, individual innovators, academia and investors, as well as military and government leaders. The entire event was designed to transform and accelerate the industry and enable government buyers to pursue the most promising innovative solutions to the most pressing and threatening space scenarios.

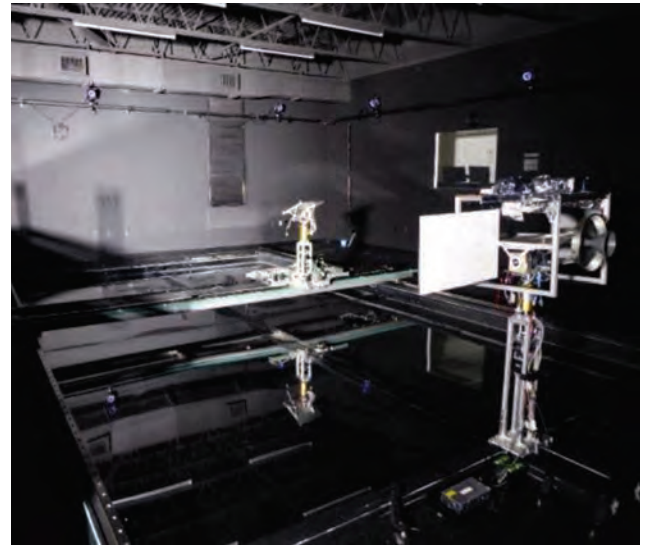
AFWERX is a U.S. Air Force program to encourage and facilitate connections across industry, academia and the military to create transformative opportunities and foster a culture of innovation.

In the AFWERX Challenge, the ORION team competed in the Space Asset Resiliency Challenge, with the goal to increase the

longevity of space assets by increasing their durability against the unique space environment and enemy threats.

Established in 2015, Florida Tech's Orbital Robotics Interaction, On-orbit servicing and Navigation (ORION) Laboratory is the center of Florida Tech's research and teaching activities in spacecraft robotics, guidance, navigation and control. The ORION Lab is dedicated to experimental research for pushing the technical boundaries in spacecraft rendezvous and capture and spacecraft robotics.

"The multidisciplinary research team consisting of faculty, grad students and undergraduate students at all levels is



Integrated flat-floor, air-bearing motion dynamics testbed in the ORION Lab enables experiments of spacecraft maneuver dynamics and contact dynamics.

constantly developing and testing prototypes for novel spacecraft robotics capabilities and novel approaches to spacecraft guidance and control during rendezvous and proximity operations," said Markus Wilde, lab director and an associate professor of aerospace engineering. "At the same time, the team is always working on improving and expanding the simulation capabilities."



Proposed Butterfly Garden Honors Mother's Love of Nature

As a boy growing up in the Missouri Ozarks, Gordon Patterson watched with fascination his mother, Molly Patterson's, passion for insects and living things. On multiple occasions, she nursed turtles, snakes, birds, squirrels, opossums, feral cats and other creatures back to health. Her mantra was simple but left a lifelong impression on the Florida Tech historian: Do no harm to any living thing.

Molly Patterson's love for living things is being honored at Florida Tech.

The Molly Butterfly Garden is projected to be a small garden that will serve as a quiet, tranquil spot. The garden will serve as a memorial for Molly

Patterson, who died in August 2020. The tentative goal is to complete the project in April 2021.

The Molly Butterfly Garden's genesis grew out of a conversation between Patterson and his colleagues, biology professor Mark Bush and ocean engineering and marine sciences head Rich Aronson. The two biologists and historian were looking for ways to enhance Florida Tech's reputation for being a green, environmentally sensitive campus. The idea of creating a butterfly garden was sparked when professors Bush and Aronson observed several species of insects indigenous to South Florida.

Molly Patterson's passing proved the catalyst for taking action. "A fellow only has one mother," Patterson observed. "My mother's grace, sensitivity and compassion has served as a touchstone throughout my life. She was a peacemaker. Most of us don't frown when we see a butterfly, and that's why I thought a butterfly garden would be a fitting tribute to her."

For Patterson, a garden reminds us of nature's ability to get things done at its own pace.

"All things have a tempo," he said. "Wisdom is the recognition that life's tempo is something that must be respected."



ML4SCI Hackathon

Florida Tech students took part in the Machine Learning for Science (ML4SCI) Hackathon Competition in October. The virtual competition took place simultaneously at several campuses in the U.S. and Puerto Rico and featured 180 participants. The hackathon focused on applying machine learning techniques to scientific challenges, including those from the fields of physics, astronomy, planetary science and geoscience. Aerospace, physics and space sciences professor Marc Baarmand and associate professor Francisco Yumiceva were local coordinators for the event.

The Florida Tech team—of Pranay Porumamilla, a senior astronomy and astrophysics major; Loriza Hasa, a physics graduate student; and Austin Brower, a senior physics major—finished third place in the Higgs Boson Challenge and fourth place in the Particle Images Challenge.

There were six main challenges, each where a team had to work with a dataset to identify a particular aspect of the challenge. In the Higgs Boson Challenge, teams were to classify a Higgs boson signal from a similar-looking background. In the Particle Images Challenge, students had a detector as a camera to identify electrons from photons using any algorithm.

The Strong Lensing Challenge saw students design and implement unsupervised deep learning models to solve the task of anomaly detection on strong lensing images, while the NMR Spin Challenge used machine learning and condensed matter physics with the goal of predicting the strength and shape of interactions between nuclear spins from simulated time-dependent magnetic curves.

The Cosmic Ray Challenge had teams develop a model that automatically locates cosmic ray artifacts by creating bounding boxes around them, while the Google Earth Engine Challenge saw teams build a training dataset for classifying different land-use/land-cover types, which use data files to describe the vegetation, water, natural surface and cultural features on the land surface.

Community Foundation for Brevard Awards Grants to Florida Tech Researchers

The Community Foundation for Brevard awarded two Florida Tech researchers a total of \$48,800 under its Medical Research Grant to Find Cause and/or Cure for Alzheimer's, Cancer, and Other Pervasive Diseases initiative. The competitive program is funded from the Kenneth R. Finken and Dorothy Hallam Finken Endowment Fund based at the Community Foundation.

The recipients are Karen Kim Guisbert and Eric Guisbert, faculty members in the department of biomedical and chemical engineering and sciences. Each will receive a \$24,400 grant.

Karen Kim Guisbert, a research assistant professor, is working on the development of a targeted anticancer therapeutic for breast cancer. She recently made a new discovery regarding the protein HSF1, which has a critical role in cancer. Now, she is translating this discovery to identify a new and more effective anti-cancer treatment.

Importantly, breast cancer patients with the highest levels of HSF1 have the worst

outcomes, meaning that this new strategy could help patients who do not respond well to current therapies.

Eric Guisbert, an associate professor, is conducting research focused on testing a new strategy for treatment of Alzheimer's disease. Alzheimer's disease is characterized by the accumulation of protein aggregates. Most of the previous research has focused on beta-amyloid plaques that form outside of cells, but thus far therapies that target this feature have not been effective.

Instead focusing on neurofibrillary tangles that form inside of neurons, Guisbert will test whether activation of a cellular defense pathway known as the "heat shock response" can be beneficial. The Guisbert lab will use an animal model where human tau is expressed in the neurons of *C. elegans*, a small roundworm, causing cell death and paralysis. This system will enable the use of genetics and the rapid testing of molecules that have been approved for human use.

New Grant to Assist Behavioral Health Services

The Winter Haven Hospital Foundation has facilitated a \$417,300 grant to Florida Tech's School of Psychology. The grant is payable over a five-year period starting in December 2020. The annual conveyance is \$83,460. **JOEL THOMAS '97**, president of the Winter Haven Hospital Foundation, used data from a community health needs assessment to connect clinical psychology resources from his alma mater to provide services at Winter Haven Hospital in Polk County.

The funds originated from the Polk County Indigent Healthcare Fund, which specifically focuses on improving access to community behavioral health services through the establishment of an ongoing Florida Tech psychology doctoral internship program at Winter Haven Hospital. Under the leadership of psychology director of clinical training Patrick Aragon, the program has been successfully implemented, with the first doctoral interns, Shelby Gregson and Tenasia Wyan, interning at Winter Haven Hospital Outpatient Neuro-Rehabilitation Program and at the Florida State University College of Medicine Family Medicine Residency Program.



Agarwal



Aronson



Bush



Chan



Glicksman



Hench



Lakshmikantham



Liao



Shaw



van Woesik

University Faculty Among Top 2% of Scientists Worldwide

Ten faculty members currently or previously associated with Florida Tech have been named to a list from Stanford University that compiles the top 2% of scientists worldwide.

Inclusion on the list is based on standardized academic citations, co-authorships and related composite metrics that gauge career-long impact.

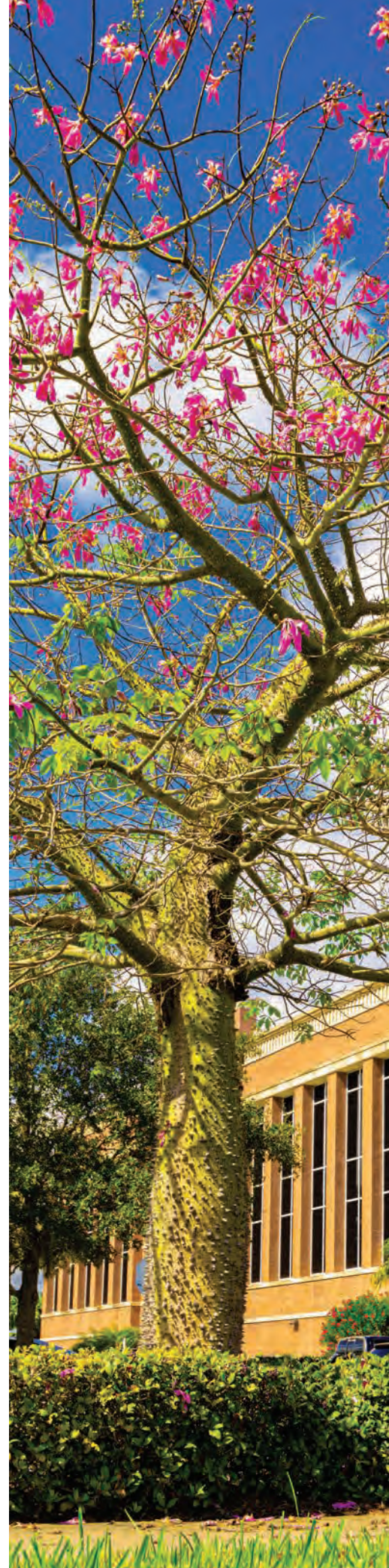
Examining 22 scientific fields and 176 subfields, the Stanford report in the journal *PLoS Biology*, initially published in 2019 and updated in 2020, lists the following faculty members with Florida Tech affiliations:

- » **RAVI AGARWAL**, general mathematics
- » **RICHARD ARONSON**, marine biology and hydrobiology
- » **MARK BUSH**, paleontology
- » **PHILIP CHAN**, artificial intelligence and image processing
- » **MARTIN GLICKSMAN**, materials
- » **LARRY HENCH**, materials
- » **V. LAKSHMIKANTHAM**, applied mathematics
- » **YI LIAO**, general chemistry
- » **STEVEN SHAW**, acoustics
- » **ROBERT VAN WOESIK**, marine biology and hydrobiology

Hench and Lakshmikantham have passed away. Agarwal is now on faculty at Texas A&M Kingsville.

The Stanford list includes more than 159,000 scientists from U.S. and international universities, businesses and other facilities.

“The faculty members on the Stanford list and across all of the classrooms and labs of Florida Tech are respected by their peers and valued by their students,” said Marco Carvalho, executive vice president and provost at Florida Tech. “We are proud of all of them and deeply appreciative of their essential contributions to the success of this university and its students.”



Again, A 'Green College'

For the fourth consecutive year, joining the 2021 edition, Florida Tech has been named to *The Princeton Review Guide to Green Colleges*. The distinction is granted to an elite group of universities that demonstrate a commitment to sustainability and the environment from the campus to the community.



Virtual Reality, Virtual Workplace

Virtual offices have grown in popularity due to social distancing measures, their flexibility, cost efficiency, as well as technology. Gary Grant, Florida Tech senior vice president of development, spoke with *The Economist* about virtual offices and how employees are working at Florida Tech.



Modern Dadhood

Florida Tech special assistant to the president Winston Scott was a guest on an episode of the Modern Dadhood podcast, a show described by hosts Adam Flaherty and Marc Checket as “an ongoing conversation about the joys, challenges and general insanity of being a dad in this moment.” Scott shared stories of his NASA space missions, discussed his tenure as a U.S. Navy captain, as well as the crucial importance of STEM education.

Artemis IT Awarded GrowFL Honor

Artemis IT, founded by university trustee **TRAVIS PROCTOR** '98, is among the top 50 second-stage companies selected as a 2020 GrowFL Florida Companies to Watch finalist. The top 50 honorees were selected from hundreds of applicants and nominees in this statewide competition that identifies companies expected to see significant growth over the next several years.

Artemis IT joins a group of companies that generated a combined \$813 million in revenue and added 668 employees from 2016 to 2019, reflecting a 103% increase in revenue, 113% increase in jobs, 27% average annual revenue growth and 20% average annual growth in employees over the period.

Larsen Motorsports Debuts New Dragster

Larsen Motorsports and Florida Tech engineering faculty and students are taking racing advancements further with the Florida Tech Generation 6 Jet Dragster, the successor to the Generation 5 Florida Tech racer that was retired in December 2020. The vehicle utilizes renewable energy initiatives, human factors, biomedical engineering expansion, products from the university's Center for Advanced Coatings and Center for Advanced Manufacturing and Innovative Design, as well as advanced manufacturing and digital design applications. At the Street Warriorz Clean Culture event held in January at Palm Beach International Raceway, the jet dragster—driven by Elaine Larsen, and crewed by **BRIAN TOCCI** '17 MBA and Bisk College of Business student Loghan Ashline—set the all-time top speed of the Street Warriorz one-eighth mile national event series with a 3.923 elapsed time at 205.7 mph.





Athletics Continues to Progress Despite Challenges Amid COVID-19 Pandemic

By Daniel Supraner

Florida Tech student-athletes have always trained to win both in the classroom and on the field of play.

Similar to countless universities across the nation, the Florida Tech athletic department has faced numerous setbacks and hardships amid the COVID-19 pandemic since March of this year: the 2020–21 athletic year came to a swift halt due to decisions from the NCAA and Sunshine State Conference (SSC), staff and coaches were reduced or furloughed and a much-loved program was discontinued.

With the health, safety and well-being of student-athletes and all those in campus communities as their highest priority, the SSC Presidents Council announced in recent months that all fall and winter sport seasons within conference would be postponed to the spring 2021 semester.

Despite these challenges, as a result of the pandemic, athletic department administrators, coaches and student-athletes have continued to push forward. Thanks to their resilience, athletic activities have increased on campus at Florida Tech since the start of the fall 2020 semester.

“We have been fortunate enough to put guidelines in place to be able to have our teams practice this fall,” said interim athletic director Pete Mazzone. “With no outside competition for any teams during the fall, this has been a big change in

the morale of our student-athletes. Team practices eased that frustration in the beginning, but let’s face it, competition is what our athletes and coaches strive for, and with no outside competition in clear sight, it becomes a challenge, but a challenge that our athletes and coaches understand and been able to endure.”

Head athletic trainer Luis Velez has overseen and managed the athletic department’s implementation of COVID-19 protocols since being hired just after the start of the 2020 fall semester, in September. He enters his second stint with Panther Athletics after serving as assistant athletic trainer for Florida Tech from 2003 to 2005 before working in the same role at Lenoir-Rhyne University in North Carolina from 2005 to 2019.

Velez has worked closely with Mazzone and the university’s Pandemic Response Team to create procedures to keep the athletic department and campus safe.

“From the beginning of this pandemic, we have met regularly with the Pandemic Response Team, at least once a week,” said Mazzone. “We worked together to put protocols in place for our students to safely come back to campus this fall as part of Florida Tech’s ‘Return to Learn.’ Additionally, the SSC’s athletic directors and senior women’s administrators have had over 60 Zoom meetings since April, where we discussed and shared measures to get our teams back to practices and competitions.”



In order for Florida Tech’s varsity teams to safely return to practice this fall, all student-athletes and coaches followed a strict resocialization plan, which incorporated university and CDC guidelines for mask usage and social distancing.

“Our resocialization plan consisted of phasing in our teams during the semester, from small groups of practice to actual full-team practices for the last four weeks of the semester,” Mazzone added.

The resocialization approach is important because it reacclimated returning student-athletes, and acclimated freshmen and newcomers, to college-level training. Most of the department’s student-athletes experienced a long layoff of almost five months away from high-level, coach-led activity since the pandemic began.

“This resocialization plan not only helps reduce risk of injury, but it also creates a culture of healthy habits to sustain participation in sports during this pandemic,” said Velez. “We implemented a sport-specific phased approach for each team since the arrival of the student-athletes at the beginning of fall semester.

“The priority was to get our student-athletes started with their academics for the first couple of weeks without gathering for athletic-related activity. Afterwards, we followed a gradual approach starting with small group training, as their particular sport allowed.



We eventually worked toward larger groups, ultimately leading to full practice with health protocols being followed.”

Before and after practice, coaches were required to sanitize equipment and monitor athletes’ temperatures upon their arrival to the venue. Student-athletes who participate in indoor activity were masked at all times during workouts and practices, while those who participate outdoors were masked as much as possible when not participating in full exertion activity.

Even though everyone in athletics and around the university has been diligent in taking safety measures, there have still been setbacks as far positive cases among student-athletes from various teams.

“I believe our university has done a great job in keeping our students and staff safe and COVID-free,” Mazzone stated. “We have had positive cases, but compared to most universities in our conference and around the country, we have been able to keep our cases to a minimum and our athletes and coaches practicing.

“There have been a few times when we have had to back off with some teams due to cases, but we have been able to contact trace and keep those students out of practice. Our athletic trainers are very involved in this process, and we have a plan in place for positive cases so that our student-athletes and teams can return to practice after a given time.”

Despite the interruptions resulting from positive cases, Velez has been pleased with the effort and persistence of Florida Tech’s student-athletes and coaches this fall to try and curb the spread of the virus on campus.

“Overall, our coaches have done a fantastic job educating their student-athletes and encouraging them to follow CDC guidelines on and off the field, as well as on and off campus,” Velez stated. “As an athletic department, we are all in this together. The administration, coaches and student-athletes are all stakeholders in maintaining public health in the community, on campus and, eventually, in competition. Everyone has had to adapt, and we will continue to adapt.”

Major steps are being taken in order for Florida Tech’s varsity teams to return to normal competitions against other schools. In addition to the protocols already in place, surveillance testing has been implemented within each team, as recommended by the NCAA, as they approach competition. This includes each student-athlete, coach and essential staff member being tested multiple times a week during the playing season.

“We just have to keep reminding ourselves to be cognizant of what it takes to stay safe during this pandemic, including mask wearing, social distancing and washing our hands,” said Mazzone. “If athletics is to compete this spring, then we need to continue to take these steps.”

Phased Resocialization Plan at a Glance

PHASE 0 (Aug. 17–Sept. 6)

Gating period for all teams. During this phase there were no team activities or practices, and all meetings were held virtually over Zoom.

PHASE 1 (Sept. 8–21)

Teams able to hold in-person practices and meetings in small groups with 10 or fewer people to focus on individual skill and conditioning. Physical distancing was required, and teams were encouraged to continue virtual meetings, if possible.

PHASE 2 (Sept. 22–Oct. 5)

Teams able to have activities in larger groups but still encouraged to continue with small groups, when applicable. Student-athletes were able to share equipment, such as basketballs and soccer balls, with the use of hand sanitizer.

PHASE 3 (Oct. 6–Present)

Teams able to resume normal team activities. Masks continue to be required and social distancing encouraged during meetings and practices when possible.



Nathan Hadland '20 in the Astrobiology Lab

Researching Regolith for Plant Growth

For future Mars colonists to succeed, they must be able to grow at least some of their food. Researchers at Florida Tech are looking at how a variety of simulated Martian soil can support this necessity in preparation for an eventual stay on the red planet.

In a recent paper, the research team of ocean engineering and marine sciences associate professor Andrew Palmer, aeronautics assistant professor Brooke Wheeler, **ARIANA EICHLER** '19, '20 M.S., and **NATHAN HADLAND** '20 tested three simulants of Martian regolith, as the soil is known—JSC-MARS-1A, Mars Mojave and Mars Global Simulant (MGS). The initial results indicate that, contrary to previous research, not all three can support plant growth.

For example, MGS, widely considered to be among the most chemically and mineralogically accurate simulants available, was actually toxic to plants, despite various strategies to make it viable. Hadland discovered that the pH level of MGS was higher than other samples, which may have played a factor in the lack of growth. More importantly, the discovery that this simulant is unable to support plant growth suggests that our understanding of how to grow food on Mars is not as advanced as previously thought.

By showing that these simulants are not facilitating plant growth as well as hoped, the findings will give current and future researchers a roadmap for testing other simulants for their ability to support plant growth, as well as help indicate what additional supplies must be transported to Mars for food production. For example, all of the simulants tested, like Mars itself, are largely devoid of nitrogen, a critical element for plant growth.

Palmer noted there are a variety of simulants made by companies and research groups, each with slightly different physical and chemical properties—much like the diverse regolith of the Martian surface. The team tested the ability of the three different simulants to support plant growth, and their findings will help us better understand the potential challenges of living on parts of Mars.

The research has provided the team with experience that will be helpful for future researchers and explorers of the red planet.

UNIVERSITY GRANT INVESTIGATES HYDROCLIMATIC RISK

A NASA grant is allowing Florida Tech researchers to use their expertise on an international scale by examining how changes in future floods and droughts will impact water resources in a key Asian region, High Mountain Asia (HMA). The research will focus on hydroclimatic extremes (such as floods and droughts) that have significant impact on the availability of water resources and the sustainability of the natural environment, with important consequences on the economic growth in the HMA region.

CLIMATE FINDINGS IN FOSSILS

Researchers at the Smithsonian Tropical Research Institute and Florida Tech biology professor Mark Bush discovered paleoclimate models may have been more humid than climate models predict. Based on tree physiology, leaf fossils and pollen around the area, a section of the Andes was no more than 6,560 feet above sea level at one point. The team also estimated the rainfall needed to support this flora was at least three times more than predicted by the latest generation of climate models.



Rick Addante applying an electroencephalogram cap to a subject for the Dunning-Kruger Effect study.

The Science of Knowing What We Don't Know

The Dunning-Kruger Effect (DKE), which describes how poor performers on a task tend to overestimate their performance while high performers on a task tend to underestimate their performance, was recently studied by Florida Tech psychology professor Rick Addante, University of Arizona researcher Alana Muller and Johnson Space Center researcher Lindsey Sirianni. (The research was conducted while Addante was a professor at California State University and Muller and Sirianni were students.)

Using an electroencephalogram cap and memory retrieval tests, the team studied the cognitive processes of the subjects and checked how they felt they were doing every 10th trial, an approach used for the first time in DKE research. The team discovered that not only did the people who *thought* they did better than others actually perform worse but that they were also faster to say so. Those who performed best tended to think they were doing worse than others and were slower to say so. This set the stage for Addante's team to explore the brain activity.

The results of the brain measures found different brain patterns among those who thought they were better or worse than other people. Instead of using recollection, the overestimators relied on familiarity, which used activity from the mid-frontal part of the brain and was associated with performing relatively worse—even though

they thought they were better.

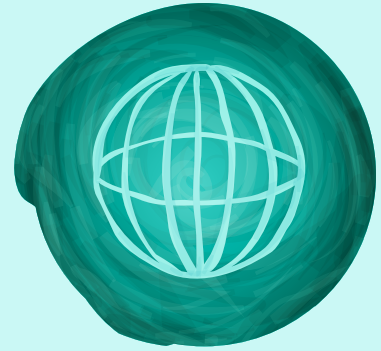
“The familiarity judgement was happening very early, within about 400 to 600 milliseconds,” Addante said. “The memory-based recollection judgement was happening about 600 to 900 milliseconds, which in our niche is a really big difference of time.”

The humble subjects' ability to recall information clearly may have also played a factor in why they were reluctant to say they performed well. As Addante noted, similar to a big test, those who may have remembered all the information clearly may also overthink about the things not on the test, causing doubt.

Previous studies involving DKE would test subjects on things such as grammar, math or logical reasoning only one time and then get the subjects' thoughts on the study afterward. By collecting the test measures multiple times, Addante and his team were able to get more consistent and accurate readings in relation to the subjects' belief (or lack thereof) of success after the tests.

In sum, humility, introspection and the willingness to improve are keys to avoiding the negative aspects of DKE.

“This is an effect that plagues everyone across cultures, history and time, and we can overcome this, but it takes work with self-awareness and metacognition, thinking about our thinking, and being humble,” Addante said.



Federal Grant Allows Florida Tech to Add High-Performance Computers

Florida Tech has secured a National Science Foundation grant for \$569,921 to fund the acquisition of a high-performance computer cluster, which will serve as the hardware backbone of a computational science and engineering center the university will develop on campus.

The university is working to launch a multidisciplinary and interdisciplinary center with a computer cluster equipped with the latest technologies for high-performance computing (HPC) and data storage that will allow faculty, research staff and students to work in a collaborative environment to create new and innovative algorithms and techniques using artificial intelligence (AI) and machine learning for conducting computational-intensive and big-data research in science and engineering disciplines.

The current HPC design includes a farm of graphics processing units using NVIDIA A100 accelerators and several computing and high-memory clusters. The HPC will be housed at the Florida Tech Datacenter in the Olin Engineering Complex. There is a 10-gigabyte network in the datacenter now; the plan is to boost the external network connectivity to a powerful 100 gigabytes in the future.



A Long Journey for a New Home

Florida Tech Joins Forces with Brevard Zoo to Re-home an Endangered Spider Monkey

By Karly Horn

Drugs, money, weapons, merchandise—you name it, and U.S. Customs and Border Protection officers have likely come across someone attempting to smuggle it into the country.

So, when officers found a 6- to 7-month-old spider monkey hidden in the center console of a white pickup truck attempting to cross the Texas-Mexico border last summer, they may have found it unusual, but unfortunately, not unheard of.

A Tragic Backstory

What was the monkey doing in a 23-year-old man's truck?

"The real answer is, we don't know because we don't have that backstory," says assistant professor Darby Proctor, who also works at Brevard Zoo studying spider monkeys and other non-human primates. "However, in cases like this, the most frequent

scenario is that a poacher goes into the forest, they shoot the mom for bush meat ... then, they take the babies to sell into the illegal pet trade."

These infants are often then sold as pets to families in the U.S. for large sums of money.

In fact, following drugs, weapons and human trafficking, the illegal wildlife trade is the fourth most lucrative transnational crime, according to the Wildlife Trafficking Alliance.

There is a reason, though, that exotic animals, like spider monkeys, are not intended to be pets.

"They need other monkeys. They need to be social," Proctor says. "They have very complex social needs that humans simply cannot provide for them."

So, when officers contacted the U.S. Fish and Wildlife Service, they brought the young monkey to be quarantined at Dallas Zoo.

Mateo's Travelogue By the Numbers

1,809
nautical miles

275
gallons of fuel

15
hours

7
flight legs

1
unplanned
stop

During those couple months of quarantine, word of the situation spread to the Association of Zoos and Aquariums Species Survival Plan, a population management and conservation program for select wildlife species, which immediately started searching for potential homes.

Finding a Home

Because spider monkeys aren't domesticated, many question why officials wouldn't simply release them and other exotic animals in similar situations back into the wild.

"If we put this guy back in the wild, he would be dead in a matter of days," Proctor says. "That's just not an option. Again, we all wish he had never been taken out of the wild, but he was. Now, we're at the point—what can we do for this monkey to give him the best life we possibly can?"

The answer: Integrate him into another group of monkeys, she says.

That is why the Species Survival Plan contacted Brevard Zoo, where Proctor recently developed a spider monkey cognitive testing complex and conducts research alongside fellow animal behavior psychologist and assistant professor Catherine Talbot and their students.

This ideal spider monkey habitat is also home to Shelley, the troop's alpha female who has an infant about the same age as the rescued monkey and who, they'd hoped, would essentially adopt him.

After permits were pulled and paperwork was filed, everything was in place. Well, almost everything.

Location? Check.

Adoptive family? Check.

Team of enthusiastic researchers to assist with the transition? Check.

Only one question remained: How do we get him here?

The Journey

Typically, in situations like these, researchers rely on commercial airlines to

transport various species. However, airlines at the time were not flying nonhuman primates, as they, like humans, are potential COVID-19 carriers.

Since the monkey had already been separated from other monkeys for at least half of his life, the longer he remained in seclusion, the more detrimental researchers feared it would be to his eventual reemergence into monkey society.

They needed a solution—and quick. Thankfully, Proctor had one: her Florida Tech colleagues at F.I.T. Aviation.

"We have planes. We have pilots. Maybe there's a way we could make this work," Proctor recalls thinking.

After much coordination between Florida Tech's School of Psychology, College of Psychology and Liberal Arts and F.I.T. Aviation, Brevard and Dallas zoos and the Species Survival Plan, the rescue mission was set.

On Sept. 17, **SHAYNE INNISS '16**, '19 MSA, and **ZACHARY ST. AMAND '19**, both F.I.T. Aviation pilots, took off from Orlando Melbourne International Airport with Dave Quavillon, curator of animals at Brevard Zoo, in a Florida Tech Piper Seminole—the same plane in which aviation students learn to fly.

"I thought it was a pretty cool thing," Inniss says. "It gives me a chance to see another side of aviation, where you're actually fulfilling another purposeful mission. ... I think it's a really cool opportunity for not just myself, but also Florida Tech."

After making stops to refuel in Panama City Beach, Florida, and Baton Rouge, Louisiana, the crew landed in Dallas seven hours later.

The next morning, they went to Dallas Zoo, collected the spider monkey, reboarded the airplane, took off and landed back at the Melbourne airport with a safe, albeit exhausted, fourth passenger: the baby spider monkey.

The Transition

After much rest and rejuvenation, the monkey regained his spirited demeanor, moving around, climbing and doing more "monkey things."

Within a couple days of his transportation, Proctor and Talbot were ready to introduce the new monkey, later named Mateo, to Shelley and her baby, confident that Shelley would take him in.

However, Shelley refused to let the new monkey near her baby, and the new monkey reacted fearfully toward all his new peers.

"Our best laid plans went out the window," says Proctor.

So the researchers scrapped their original integration plan and set forth at a more gradual pace.

What's Next?

While every monkey—just like every human—is different, determining what behaviors or reactions to anticipate and deciding what steps to take in response to them has been particularly challenging throughout this integration process, as no similar studies have been published.

Proctor and Talbot, however, plan to publish their research regarding the integration process—what worked, what didn't and how they proceeded—in the hopes that it might help institutions in future similar situations, even if just as a starting point.

The ultimate hope for Mateo is that he would fully integrate with the group, and that goal has been met. While Mateo has a little more to learn about how to be a monkey, the prognosis is very favorable.

After scrambling to assemble a transportation plan and successfully navigating an integration plan, the rescue mission concluded with a happy ending. Because of the work and contributions of many, Mateo has a promising future.

The Quiet Impact

Wherever you look, Panthers are there, driving the technology and processes that drive society.

By Stephanie R. Herndon '07

Florida Tech is relatively small as far as the student population goes. No doubt, that fact is what drew many students to the university in the first place. The diminutive scale allows for a sense of community, individual attention and hands-on experiences not feasible at larger schools. These attributes have been part of the Florida Tech experience since its beginning.

Enthusiastic efforts of the university's staff, the indelible influence of the faculty and impressive endeavors accomplished by alumni have helped increase Florida Tech's notoriety considerably over the last six decades. Even still, Florida Tech is not yet a household name. Florida Tech graduates are an exclusive few in the world, making it a rare treat to discover a fellow alumnus at an airport, in the workplace or, frankly, anywhere.

However, the university's quiet yet permeating impact is felt in all corners of the world. Wherever you look, you will see something worked on by a Panther, sending ripples of our effect into our communities—with a paw print at the epicenter.

Panthers are behind the rockets soaring into space, the forces and technology safeguarding our nations, the weather alerts keeping us informed and prepared, the bridges you drive over every day. They're behind the strategy that drives our businesses, the sports you cheer for, the transportation getting you to the destination, the entertainment you turn to for a much-needed break—and so much more. You may not always realize it, but Florida Tech's alumni are the people behind the things we use or see every day.



Perhaps the most ubiquitous element in our lives is GPS. Most people recognize GPS for turn-by-turn directions but would be surprised to learn that it is used to grow food, forecast the weather, route phone calls and distribute electricity. And every GPS satellite ever launched has relied on technology made by L3Harris Technologies.

Headquartered in Melbourne, Florida, L3Harris has a long-time history with Florida Tech and employs over 800 Florida Tech alumni. One of those alumni is **LINDSAY ISAAC '18, '19 M.S.**, a communications specialist with the company.

"Every time you turn on a light switch, check the weather or a map on your phone, make a purchase or call a friend, you're relying on the Global Positioning System (GPS)," Isaac says. "ATMs, cash registers and even entire stock markets depend on GPS because it is the most accurate timekeeping method on Earth."

GPS has transformed our lives. Gone are the days of writing down directions and keeping folded maps in the glove box. Parents can now easily track where their children are at any time via smart-watches. Consumers can watch their Amazon shipment make its way down the street—only three stops, two stops, one stop away.

It is up to Isaac, who graduated with a bachelor's degree in communication and a master's degree in global strategic communication, to tell the story of these and other technological feats that L3Harris—and those Florida Tech alumni who work there—undertake every day.

"L3Harris's technologies impact our daily lives in surprising and far-reaching ways—even outside of GPS," she says. "Our innovative space antenna solutions, for example, make it possible for you to watch your favorite television programs, access the internet and chat on the phone with friends and family."

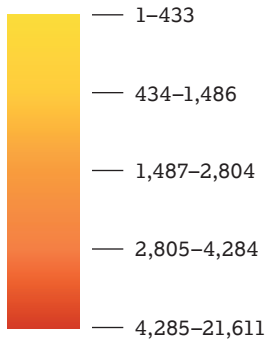
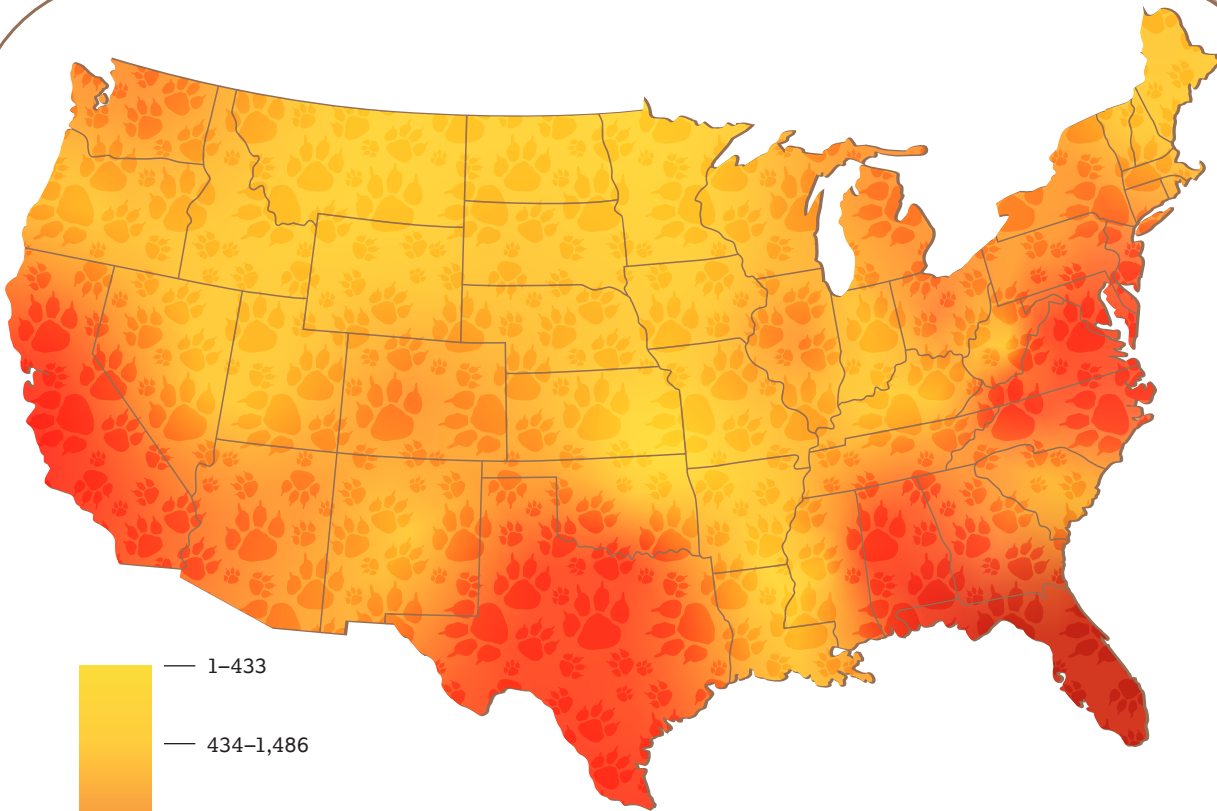
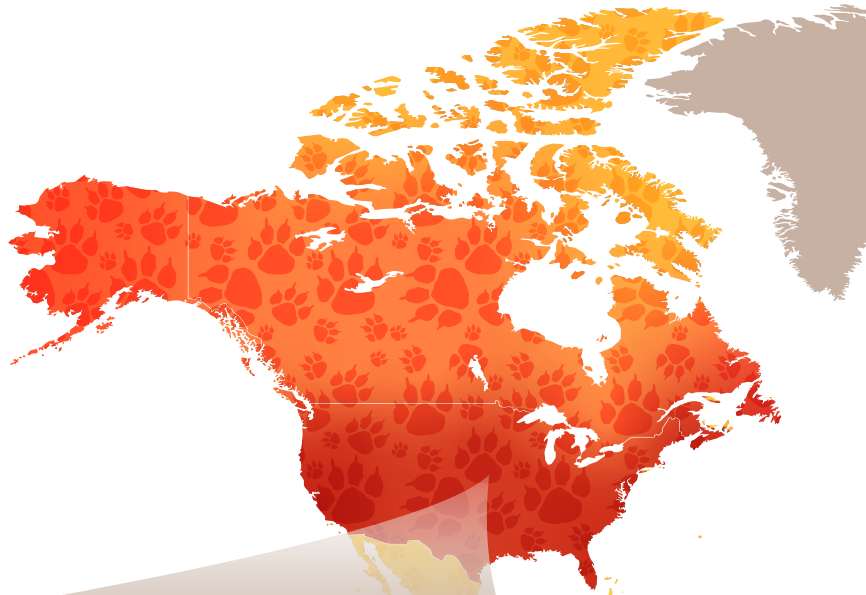
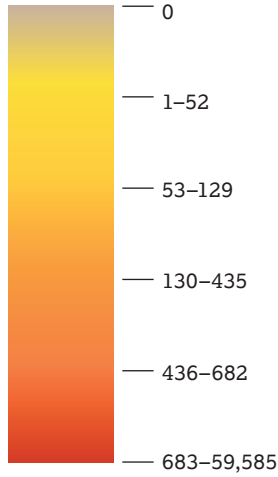
Isaac is most excited about how her company is safely integrating drones into national airspace, potentially saving time, money and lives. "Most drone operations are currently limited to short distances within the remote pilot's line of sight," she says. "By enabling safe, routine beyond-visual-line-of-sight (BVLOS) operations, L3Harris is unlocking the benefits of drone technology for applications as varied as critical infrastructure inspection, emergency response, package delivery, precision agriculture and even urban air mobility."

continued on page 22

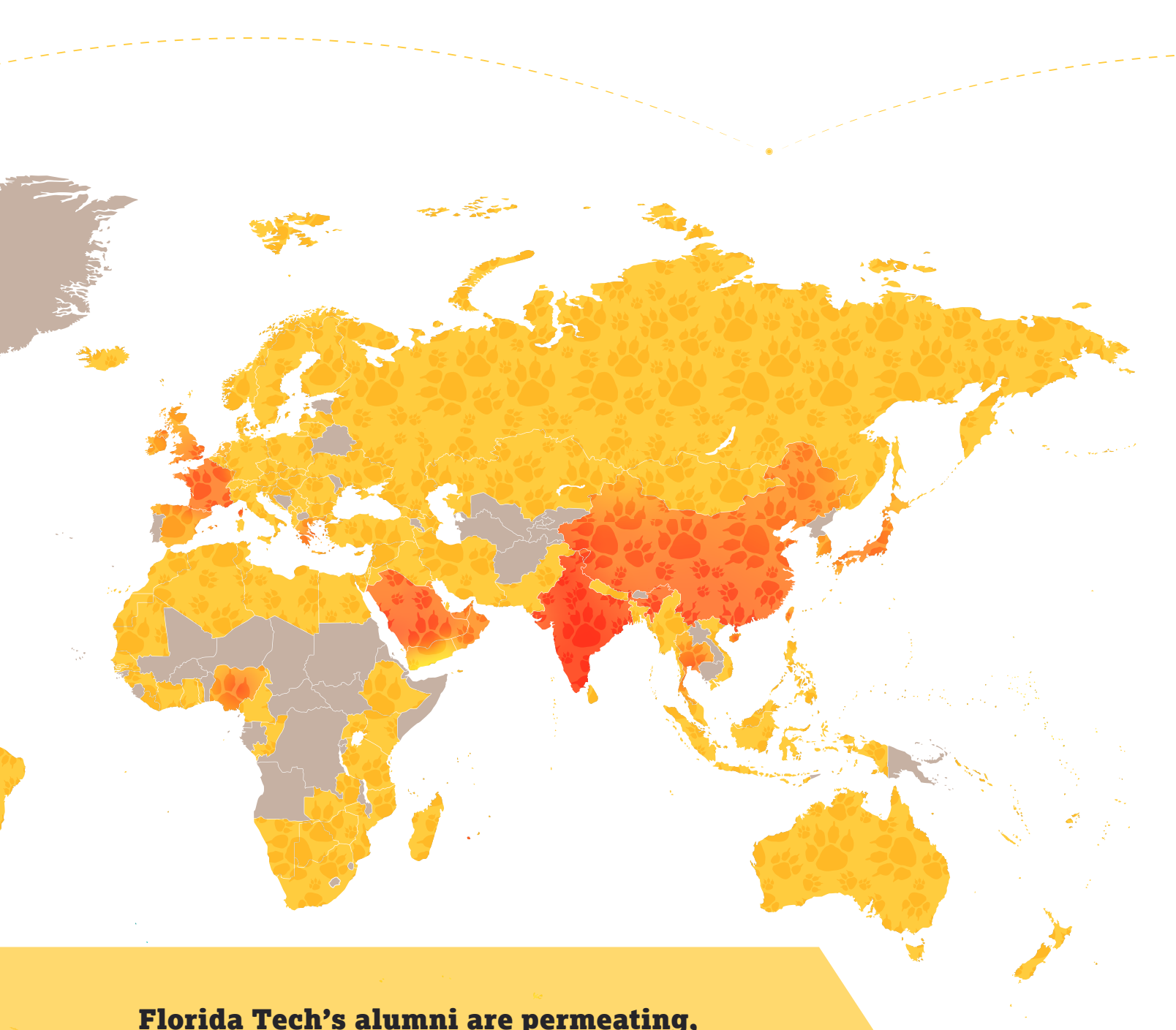


Panthers Worldwide

Beyond the United States, you can find Panthers worldwide from Argentina to Zambia. This heat map shows the concentration of Panthers across the globe, with the greatest numbers in the United States, Canada, India, China, Thailand, Taiwan, Saudi Arabia, United Arab Emirates, French Guiana and France.







Panthers reside in all 50 U.S. states. Beyond Florida, the highest concentrations of Florida Tech alumni can be found in Virginia, Alabama, California, Texas, Georgia, North Carolina, Maryland and New Jersey.





Florida Tech's alumni are permeating, leaving their mark—or, paw prints, if you will—around the globe.


Among our alumni, we have:


-  An Omani governor
-  Stock exchange pros
-  TV personalities, actors and producers

 Space architects, gardeners and astronauts

 Olympians and professional athletes

 Cancer researchers

 Military leaders

 The namesake of an asteroid

 A federal judge

continued from page 18

Isaac says that studying communication at Florida Tech prepared her well for being a “creative” in a tech-dominated community. She gravitated toward the university and L3Harris because they are both places where creativity and technical prowess coexist.

“People often view rigor and imagination as mutually exclusive, but they’re not, and we need both. In fact, understanding the value of both art and science—i.e., appreciating the quantitative while also appreciating the qualitative—has opened a lot of doors for me.”



LINDSAY ISAAC '18, '19 M.S.,
COMMUNICATIONS SPECIALIST,
L3HARRIS TECHNOLOGIES



Indeed, the right brain and left brain need not operate independently, siloed from one another. Logic and creativity not only coexist in nearly all things but often support and strengthen each other. Artificial intelligence is at that intersection of creativity and calculation.

MICHAEL KAZI '07, Ph.D., weaves the two together perfectly. He works for LinkedIn as a software engineer on AI foundations, primarily on search-related projects.

In the recently published paper “Incorporating User Feedback into Sequence to Sequence Model Training,” published in *CIKM '20: Proceedings of the 29th ACM International Conference on Information & Knowledge Management*, Kazi and his LinkedIn colleagues outline their process of using a deep-learning Seq2Seq model with query suggestion to offer several alternatives for users.

When a LinkedIn user performs a search, suggestions for related searches display with the search results. When a user selects a suggested alternative, feedback is given to the system and incorporated by adding a novel pairwise ranking loss term during training.

In layman’s terms, Kazi is training LinkedIn’s search engine to better predict what you’re trying to find and help you find it faster.

LinkedIn is one of the most popular networking sites available, tailored less to social networking and more to professional networking. The site allows users to build a career profile—an expanded résumé, if you will—follow industry resources, connect with professional connections, post content, send direct messages and look for open positions. It’s considered by many to be the go-to source for career networking. Since LinkedIn has over 760 million users, you probably already know this.

A large part of what makes LinkedIn such a robust tool lies in its search engine. Here, a user may search for current or potential connections by name, current or past company, education level, school, job title, location,

industry and more. According to LinkedIn, 40 million people use the site each week to search for a job—and that does not count searches for people, companies or groups.

Kazi is the man behind this technology, making it better every day. “At LinkedIn, we are very focused on quality assurance,” says Kazi. “We have plenty of metrics by which to measure changes. Together with our product managers, we set a high bar for improving the member experience.”

He has seen the company keep up with a fast-changing software environment over the past few years, which is tricky to do at their scale while maintaining excellent service, but says, “I think there will be even more work and innovation around how we leverage AI at scale for our various offerings across the platform.”

Kazi predicts that the LinkedIn news feed will become a more productive tool for brainstorming and sharing ideas across groups and communities of shared interests, and he hopes he can continue to make positive changes to the job search experience. “For anyone, being able to find a job you are uniquely qualified for is something that’s very important both in good times and bad.”

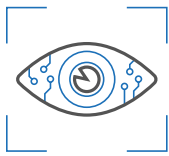
Kazi earned a Ph.D. in mathematics from the University of California Berkeley after completing his bachelor’s degree in computer science and applied mathematics at Florida Tech. He credits Florida Tech and programming contests while an undergraduate for his computer science fundamentals.

“That aspect was invaluable in getting jobs in this industry. I also learned quite a bit on the software engineering and testing aspect of things. FIT also inspired me and got me into an excellent graduate school where I picked up more technical depth.” He adds, “On a concrete note, I remember the computer facilities at FIT were top-notch and gave me a head start on using Linux.”



I think there will be even more work and innovation around how we leverage AI at scale for our various offerings across the platform.

—MICHAEL KAZI '07,
SOFTWARE ENGINEER, LINKEDIN



Cybersecurity

Linux, the open-source operating system, is oft-used in programming because it is a proven, secure baseline system. For this reason, many programmers use Linux as the basis of cybersecurity tools.

In 2019, over 1,500 data breaches took place in the U.S., exposing nearly 165 million records. As technology envelops more and more of our lives, the need for cybersecurity continues to grow. The world around us is more connected than ever—from watches to refrigerators, shoes to exercise machines, toothbrushes to vehicles.

Not only do our vehicles represent significant investments, but they also transport precious cargo—the most precious being ourselves and our families. For this reason, automakers tout safety features as significant selling points. One of the newest safety features hitting the market isn't for your physical safety—it's for your digital security.

KATARINA BOROVINA '19 M.S. is one of the people making sure your vehicles remain safe against cyberattacks. She works for Hyundai Kia America Technical Center as a vehicle cybersecurity engineer, creating and refining the security requirements and specifications for vehicle systems and exposing vulnerabilities.

The threats to connected vehicles vary from vehicle to vehicle, but Borovina says the most common one is having the vehicle's drive systems taken over. Over the last decade, hackers have managed to disable fleets, steal private data and financial information, cut brakes and control lights, locks, alarms, horns, sunroofs, wipers and engines while vehicles were in motion.

"We take care of this so consumers don't have to worry about it," says Borovina. Her current

project is so new it has yet to deploy to vehicles on the market, so good things are on the horizon to keep drivers protected. Hyundai says that by next year, some 250 million connected cars will be on roads throughout the world and that even if you don't drive a connected car, all cars produced today contain at least one computer.

In 2017, Borovina's company partnered with Cisco to produce infrastructure that encompasses advanced security to reduce hacking. In fact, most automakers are adopting new cybersecurity technologies as they add more connectivity to their vehicles. This makes roles like hers more critical than ever.

"This role is extremely important for every individual," Borovina says. "Unfortunately, in these odd times, it's hard to tell what life would be like without this field. In my opinion, it will only become more difficult for us to mitigate threats, but the field is rapidly developing and keeping up well on the safety aspect."

Keeping nimble and ahead of potential threats is of utmost importance, and Borovina says Florida Tech has prepared her well. "It pushed me to get everything I was looking for. My mentors prepared me for the worst-case scenarios in the cyber field."

These and tens of thousands of other Florida Tech alumni are making a difference in people's everyday lives around the world. No matter where you look, you see the mark of Panthers—sometimes out in front and sometimes behind the scenes—their impact can be felt everywhere. So, to all the alumni reading this, be proud. You, too, are part of the quiet impact Florida Tech is having on our world.



KATARINA BOROVINA '19 M.S.,
VEHICLE CYBERSECURITY
ENGINEER, HYUNDAI KIA
AMERICA TECHNICAL CENTER



TO THE STARS

By Tom Kertscher

With a focus on program planning and control, Rich Ryan '88 is playing a key role in developing the next space telescope for NASA.

The scope of the work of **RICH RYAN** '88 is, well, cosmic.

Perhaps that could be said of anyone who works for the National Aeronautics and Space Administration.

But Ryan played a key role in developing NASA's James Webb Space Telescope, a space-based observatory that will serve thousands of astronomers worldwide. The Webb, an international collaboration between NASA and the European and Canadian space agencies, is scheduled to be launched on a rocket from French Guiana in October 2021. According to NASA, it will study "every phase in the history of our universe," from the Big Bang, to the formation of solar systems capable of supporting life on planets like Earth, to the evolution of our solar system.

How?

"The Webb's instruments are primarily infrared," Ryan said. "What happens with infrared, when you're looking through infrared, you can look through cosmic clouds and things like that."

The Webb, named after James Webb, who ran NASA from 1961 to 1968, will build on the discoveries of the Hubble Space Telescope. According to the agency, it will be able to

configuration management and scheduling. He helped oversee a major replan of the project, in order to get the Webb ready for launch. Ryan said he worked with major contractors and international partners on issues such as building flight hardware and software. He helped make decisions on questions such as how many contractors to use and how many tests should be done, all with an eye to staying on schedule while managing risks.

"My role really had to do with a big focus on PP and C—program planning and control," Ryan said. "A lot of my effort, once we established a baseline across the entire program, was to take a look at cost and schedule performance."

"NASA takes its commitment very seriously, no matter what mission it is. There's a lot of technology, there's a lot of development and emphasis that goes into making sure we get it right."

Ryan, now chief of Goddard's Program and Projects Resources Management Office, previously worked on the Hubble Space Telescope, which has orbited Earth since 1990. Among other things, the Hubble has been credited with detecting the first organic molecule discovered on a planet outside our solar system and helping scientists determine the process of how planets are born.

Ryan has won the NASA Exceptional Achievement Medal, the NASA Outstanding Leadership Medal and various other NASA awards. He said his time at Florida Tech helped raise his aspirations, partly through serving as the school president of the

American Association of Airport Executives.

"I was able to attend AAAE conferences with airport managers and aviation corporations and hear them speak. And as a 20-year-old kid, it's pretty exciting. You actually get a perspective of the real world," Ryan said.

What did we say about cosmic?

In October 2020, Ryan became the program business manager for NASA's Mars Sample Return program, a proposed mission to return samples from the surface of Mars to Earth. The mission would use robotic systems and a Mars ascent rocket to collect and send samples of Martian rocks, soils and atmosphere to Earth for detailed chemical and physical analysis.

Ryan said the Webb will always be one of his most valued experiences at NASA.

"That's one of my highlights, being able to work on a flagship mission that has international visibility, that will really help mankind understand more," he said. "Just being a part of that, even if it's on a project management side, it's very gratifying."

“We'll be looking deeper into the universe than we ever have in the past.”

RICH RYAN '88

"look further back in time to see the first galaxies that formed in the early universe and to peer inside dust clouds where stars and planetary systems are forming today."

"We'll be looking deeper into the universe than we ever have in the past," Ryan said. "That alone is so exciting."

Ryan has worked since 1992 at NASA's Goddard Space Flight Center outside of Washington, D.C., in Greenbelt, Maryland. The center describes itself as the "home to the nation's largest organization of scientists, engineers and technologists who build spacecraft, instruments and new technology to study Earth, the sun, our solar system and the universe." It is home to both the Hubble and Webb space telescopes; it also manages communications between mission control and orbiting astronauts aboard the International Space Station.

From late 2010 through late 2018, Ryan served as the Webb's deputy project manager for resources, responsible for resources management activities, including financial and performance measurement, budgeting, project control/support,

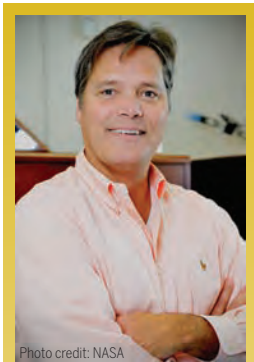


Photo credit: NASA

RICH RYAN CAREER AT A GLANCE

1988:
B.S. Aviation Management, Florida Tech

1992:
MPA, Rutgers University

1992:
Joins NASA

1996–2000:
Project support manager, then financial manager, Hubble Telescope


2010–2018:
Deputy project manager, Webb Telescope

October 2020–present:
Program business manager, Mars Sample Return program

Initiative in the WATER

For decades, Florida Tech has worked to better understand the Indian River Lagoon. New research projects, as well as a new building, continue the focus on improving the overall health of the lagoon.

By Ryan Randall



Stretching 156 miles along Florida's eastern coast spans a waterway that is home to 2,100 different species of plants and more than 2,200 animal species. This estuary is comprised of the Mosquito Lagoon, Banana River and Indian River. From Ponce de León Inlet in Volusia County to Jupiter Inlet in Palm Beach County, this collective known as the Indian River Lagoon (IRL) is a place of oceanic biodiversity, community identity and unquestionable beauty.

The lagoon is also troubled, battered by forces of nature and humans—rarely, at least in recent memory, at its pristine and healthy best.

That's why for more than 40 years, Florida Tech faculty and students

have worked to better understand the Indian River Lagoon. It has struggled to remain healthy, marred by increases in algal blooms and fish kills and the decimation of oyster and seagrass populations. This has spurred lagoon supporters from labs and living rooms to explore multiple approaches to restoring the IRL's health, as scientists and lawmakers investigate the effectiveness of different actions and procedures.

Over these multiple decades of research, Florida Tech has examined various ways that may help improve the lagoon's water quality. Much like the diverse system itself, this work will take various efforts from diverse fields to succeed.

Here's a look at several efforts underway at Florida Tech. >>

continued on page 28

Restoring Lagoon Inflows

Florida Tech's Restore Lagoon Inflow research project is a multi-year study funded by the State of Florida through the Florida Department of Education in support of a local project appropriation secured by the Brevard County legislative delegation. The project is studying the possible effects of enhanced seawater exchange between the IRL and coastal ocean, and related research is expected to provide critical data analysis to help policymakers, agencies and stakeholders determine if this seawater exchange via mechanical pumping or other mechanism should be considered as a viable complement to ongoing restoration activities.

"We do not have a preconceived idea of what the benefits, if any, of inflow will be," said Jeff Eble, research assistant professor in

algal blooms and related declines in lagoon health.

"We have this established ecosystem, for better or worse, that is disconnected from the coastal ocean," said Gary Zarillo, a professor in ocean engineering and marine sciences who is leading the extensive modeling research in the lagoon inflow project. "Under more natural conditions, before we had a human-natural system coupling, routine overwashes at tidal inlets would open up and stay in place for a while, migrate along shore, rework the barrier island, close and then a time after that there might be another cycle."

The findings in Phase I highlighted well-documented patterns in the lagoon and estuaries, including impacts of declining water quality on resident species and habitats.

“We are investigating the impact of inflow, negative and positive, on the water quality, habitats and resident species of the Banana River.”

—JEFF EBLE, RESEARCH ASSISTANT PROFESSOR

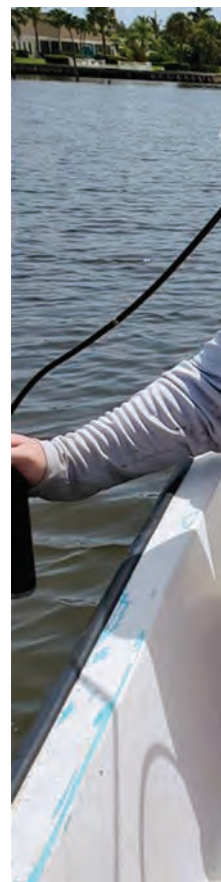
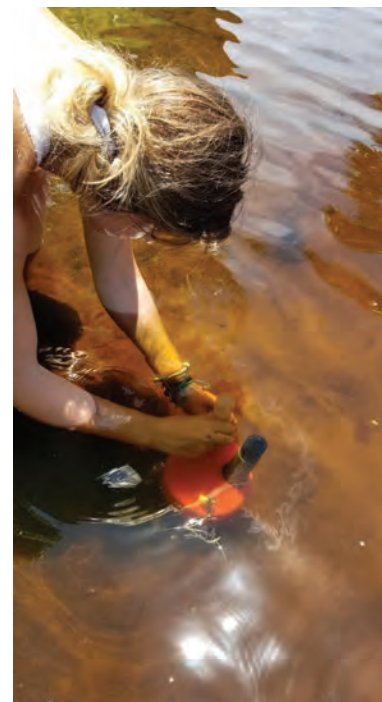
ocean engineering and marine sciences and one of several faculty members involved in the project. "We are investigating the impact of inflow, negative and positive, on the water quality, habitats and resident species of the Banana River. Can inflow help restore the health and vitality of the Banana River system, which would translate to benefits for everyone who uses the river? And can inflow provide these benefits without significant negative impacts? These are the questions we are seeking to answer."

As the government and developers have hardened the shores and altered habitats to support new development and protect existing development, water exchange among lagoon basins and between the lagoon and the ocean has become restricted. That decrease in water circulation has led to increased accumulation of nutrients, which promotes more frequent harmful

Researchers also found high natural variability in temperature and salinity both among and within lagoon sites, which reflects the dynamic nature of estuarine ecosystems.

The team investigated inflow possibilities via physical and geochemical modeling and found that all modeled pumping scenarios reduce water residence time—the average time water is retained in a specific area—and that residence time decreased with increased pumping volume. Pumping was also predicted to result in an overall small decrease in water temperature, a small increase in salinity and more stable dissolved oxygen concentration.

The team also conducted baseline field surveys to track seagrasses, drift algae and benthic inverts and to study phytoplankton response to pumping.



Student researchers: Top: Caleb Lodge prepares to deploy an acoustic Doppler current profiler in the Banana River. Above left: Abbey Gering collects water samples from a benthic chamber used to measure nutrient fluxes and sediment oxygen demand. Right: Sean Crowley collects data from the boat.



Student Nayan Mallick collects infauna data by using sediment grabs and sieving the mud/sand.

Digging in the Data

Field sampling yielded not only useful data but invaluable research experience for students such as Austin Anderson. Anderson, a master's student in marine biology, worked with oceanography and environmental sciences professor Kevin Johnson's lab on benthic and seagrass surveys, among other duties.

"When I started working the project, I had to be taught every aspect of the research we were conducting," Anderson said. "There is some stuff that is hard to teach in a course because the curriculum doesn't always cover it or line up in a way that calls for it to be taught. This is why research is important to get involved in."

The lagoon, he added, provides an opportunity for research in the university's backyard that students elsewhere may not get to experience.

"We get to study what has been regarded as one of the most biodiverse ecosystems in North America for a long time, in a way that seeks to

to better characterize pumping impacts, with the location of the pilot pumping project being most effective at or near the locks in Port Canaveral. That is due in part to the relative lower cost and ease of access for a temporary pumping system as well as the existing exchange of seawater from port access at the locks. Additionally, the Banana River portion of the lagoon, where the Port is located, has been a "hot spot" for harmful algae blooms and declining water quality, so studying the impact of pumping in that area could yield highly beneficial results.

"One of the primary goals of phase 1 was to identify candidate research test sites and determine which location would be best for transporting nutrients out of regions in the lagoon that have high retention times and correspondingly high nutrient loads, which lead to harmful algal blooms," Eble said.

Phase 2 of the project, which received state funding in late 2020 involves several



“That is every research scientist's dream—to conduct research that can help restore an ecosystem to the haven of biodiversity it once was.”

—AUSTIN ANDERSON, MARINE BIOLOGY MASTER'S STUDENT

restore the habitats that helped make it so diverse," Anderson said. "That, to me, is something that is every research scientist's dream—to conduct research that can help restore an ecosystem to the haven of biodiversity it once was and still has the potential to be."

First phase data highlighted the need for a small, temporary inflow pilot system

elements that build on findings from the first phase: integrating models to better resolve the influences of different inflows on the Banana River; increasing baseline data collection to inform project feasibility and support the proposed pilot study; incorporating feedback from stakeholders and permitting agencies; and investigating alternative pilot designs.

continued on page 30

Working for Coastal Communities

Whether increased inflow may help in the lagoon's water quality will depend on nutrient fate—how nutrients are transported, cycled and ultimately removed from the system.

"The initial assumptions that people make is that this is simple: you pump good water in, and bad water flows out. It's much more complicated than that," said Austin Fox, assistant professor of ocean engineering and marine sciences who is leading the geochemical aspects of the project. "How do those changes influence other aspects of water quality? You have all of these processes occurring within the system, so you can't think of this as you add some water to your Kool-Aid and it is quickly diluted. Think of it as you have some Kool-Aid that has some powder at the bottom, and as you add more water it's not immediately diluting it."

Ultimately, the goal of the project is to determine whether enhanced circulation is a viable complement to a range of conservation activities that will be needed to restore the lagoon to full health.

In addition to Eble, Zarillo and Fox, Florida Tech faculty members Jesse Blanchard, Ashok Pandit,

Jonathan Shenker, Ralph Turingan, Robert Weaver and John Windsor are involved in the lagoon inflow research project.

Florida Tech's work on the lagoon not only has the potential to assist the local region, but other communities as well.

"Coastal water quality is one of the most ubiquitous problems of coastal areas around the globe," Fox said. "We like to look at the lagoon as this microcosm where we can study these global processes, and it's easy to access and has a huge variety of environments."

For ocean engineering and marine sciences head Rich Aronson, it's important to emphasize the IRL's problems will not be solved immediately nor with one solution. However, the work the university is doing not only provides educational opportunities for students but contributes "to our overall understanding of environmental threats and solutions."

"There's an unfortunate tendency to think if your contribution to science or your individual action on an environmental problem is small that it doesn't matter, but the things we do add up," he said.

“Coastal water quality is one of the most ubiquitous problems of coastal areas around the globe. We like to look at the lagoon as this microcosm where we can study these global processes, and it's easy to access and has a huge variety of environments.”

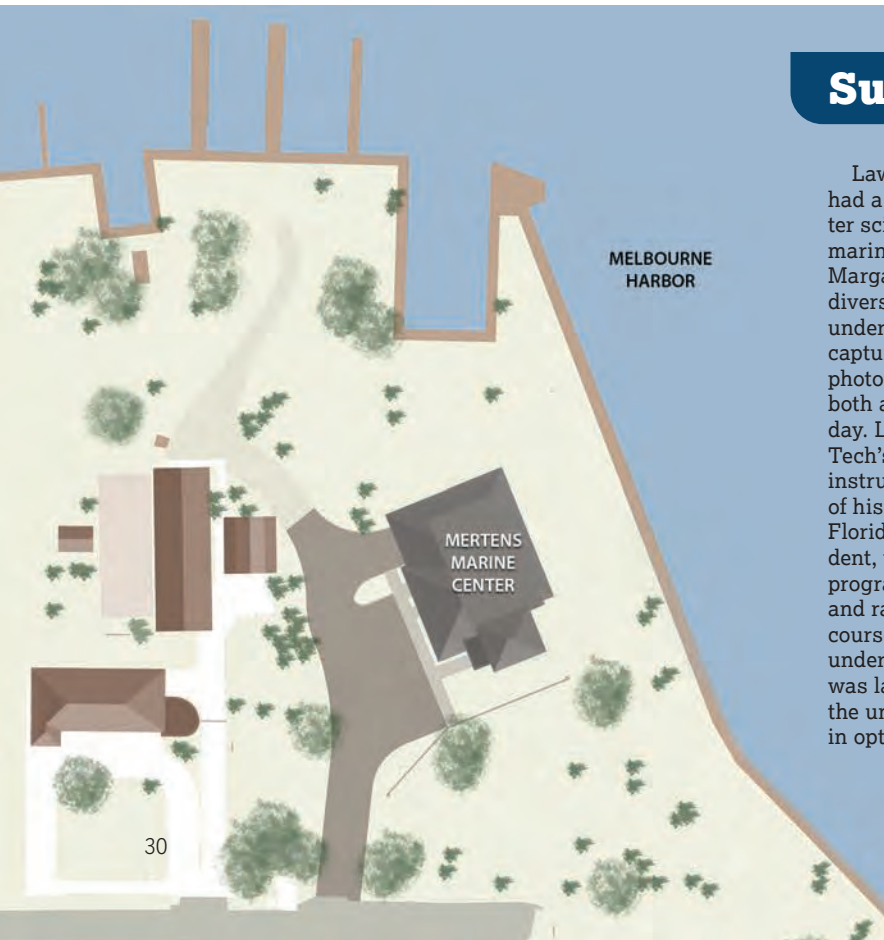
—AUSTIN FOX, ASSISTANT PROFESSOR

Support Through Passion

Lawrence "Larry" Mertens had a passion for underwater scientific research and marine life. He and his wife, Margarete, were avid scuba divers. Larry also enjoyed underwater photography, capturing beautiful color photographs of fish and corals both at night and during the day. Larry became Florida Tech's first marine biology instructor through the request of his friend Jerome Keuper, Florida Tech's founding president, who was starting up the program. Mertens designed and ran the first summer field course in the Bahamas for underwater photography and was later an instructor for the university's first course in optical oceanography. He

was also the first Florida Tech faculty member to author a college-level textbook, on in-water photography.

As Mertens grew to become a major benefactor for the university, he used his passion for the water as a guide for some of his largess. In 2014, the Lawrence and Margarete Mertens Endowed Fellowship Fund was established, which supports graduate students enrolled in the College of Engineering and Science through a \$1 million gift. In 2017, they established the Lawrence and Margarete Mertens Building Fund another \$1 million gift to support the development, design and construction of a state-of-the-art facility at the Ralph



Bags of Bottlecaps

Assistant professor Austin Fox and graduate oceanography student Abbey Gering are working on a novel IRL water treatment that will feature mesh bags filled with bottle caps. The bags will be placed in strategic locations within the lagoon to allow “good” bacteria to grow on them. These good bacteria can convert and remove excess nitrogen from the lagoon through a process called denitrification, helping clean the water and contributing to the prevention of harmful algal blooms. The bags can be moved to other parts of the lagoon, with the accumulated bacteria helping improve water quality in whichever areas they are needed.

This doesn’t mean that tossing your bottle caps into the lagoon will lead to cleaner water, Fox and Gering emphasized. The cap-filled bags will work best in ideal conditions, where the bacteria would thrive with an abundance of nitrogen and just the right amount of oxygen, leading to biochemical reactions that could in turn lead to improved water quality.

This project stemmed from testing if adding oxygen to the lagoon would improve water quality. While there were promising results with this process, known as aeration, Fox felt like the results could be better if they had the right bacterial communities. This is because the degraded lagoon sediment where the water-cleaning bacteria would grow was not ideal for those types of organisms. It was then that Fox examined whether they could develop a place for the bacteria to live, which led to Gering using bioballs—plastic balls used in home aquariums—to provide a place for

that growth. Those healthy bacteria helped to get rid of the nitrogen, but Fox and Gering wanted to find a sustainable and cost-effective way to carry this finding forward.

The project has had the fringe benefit of strengthening community connections. In addition to reaching out to students about gathering and providing bottle caps, the team is working with businesses such as the Brevard Zoo and local coffee shops to collect the plastic tops.

“Once you start collecting them, you start realizing how many bottle caps you use daily,” Gering said. “It’s a good way to get the community more aware of their use, while also reusing it for something that may help water quality.”



S. Evinrude Marine Operations Center at the mouth of Crane Creek on Melbourne Harbor.

The building will assist researchers in their Indian River Lagoon (IRL) improvement efforts and provide a premier educational experience for students as they get hands-on experience with the lagoon. While Lawrence Mertens passed away in

December of that year and Margarete Mertens passed away in May 2018, their endowment for the building was a final way of giving to their passion. Currently, land zoning and building renderings are in production, with a goal of opening the building in 2022.

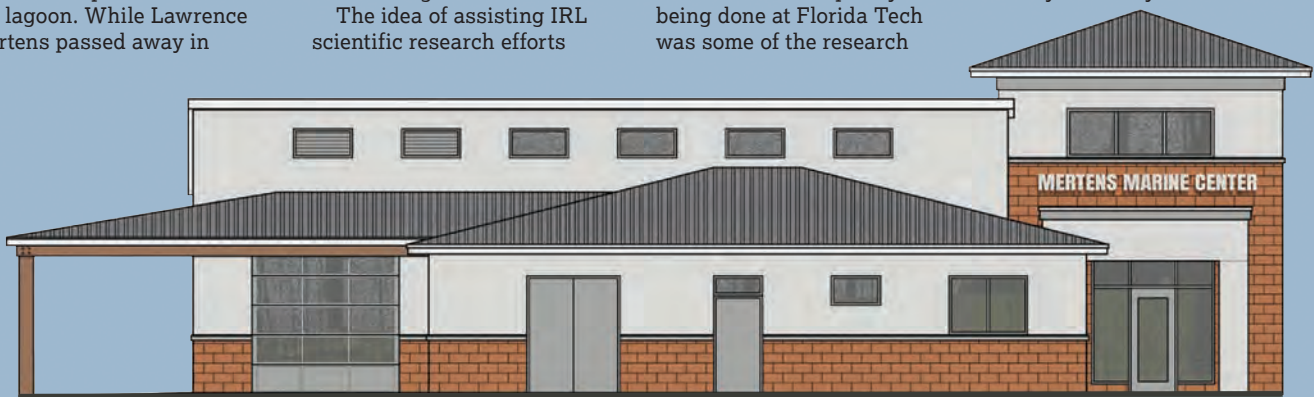
The idea of assisting IRL scientific research efforts

was something that Mertens was interested in prior to his passing. Through his educational, diving and underwater photography experience, Mertens saw the benefits of clean water, not only from a biological standpoint, but from a human interest one as well.

The IRL water quality work being done at Florida Tech was some of the research

the Mertenses enjoyed learning more about during their trips to campus.

“This building is part of the legacy of Larry and Margarete, and we are excited to see the work that will come out of it to help the Indian River Lagoon,” university President Dwayne McCay said.





News from the desk of
Fin Bonset '96,
'99 MSA

Florida Tech
Alumni Association President

I give my sincere appreciation to our outgoing president, Kim Bozik, for his many years of dedicated service to the FTAA. Although I wear a size 15 shoe (yes, I am Dutch and that is the norm where I come from!), I have some large shoes to fill as I am following in the footsteps of an outgoing president who presided over a period of growth and progression for all alumni activities, collaborating with the Alumni Affairs and Student Life teams. I am honored to assume this role and look forward to engaging my fellow alumni, over 65,000 strong, in the coming months.

Part of my role as the new president of the FTAA is to help identify "what's next" and how my fellow Panthers can play a role in shaping the future of our great university. It is important to understand where we want to go next while we continue to elevate and promote who we are.

New Florida Tech infrastructure projects—new buildings, new curricula and enhanced alumni activities—are easy to identify, but focusing on our global influence based on our current positions within the STEM industries is how we can look ahead. Whether it is striving to go to Mars and grow food, solving water pollution problems, hunting hurricanes to prepare for impacts or health science ventures that explore Alzheimer's and cancer treatments, we endeavor to do what we can to assist and promote these actions that promote good global citizenship.

The relentless nature of a Florida Tech Panther encompasses solidarity. When Panthers unite, great things happen. Our annual Day of Giving is evidence of this unity. We experienced strong participation from across our alumni base to help support our students and campus groups. The biggest impact alumni can make is to participate. The more alumni who support our efforts, the more positively we can influence our rating in the *U.S. News & World Report* rankings.

Go Panthers!

YOUR ALUMNI ASSOCIATION OFFICERS

Fin Bonset '96, '99 MSA | President | Indialantic, FL | fbonset@vhb.com
Sherry Acanfora-Ruohomaki '93, '00, '05 M.S. | Vice President | Melbourne, FL | sherry@k9kampus.com
Chad Shultz '96 | Treasurer | Indialantic, FL | cshultz@icloud.com
Warren Pittorie '15, '18 M.S. | Secretary | Melbourne, FL | wpittorie2012@fit.edu
Jody Palmer '07 | Member-at-Large | Melbourne, FL | jodybpalmer@yahoo.com
Chris Fernando '02 | Member-at-Large | Raleigh, NC | cfernando@gmail.com
Kim Bozik '87 | Past President | Chandler, AZ | kim.bozik@regan.com
Bino Campanini '90, '92 | Executive Director | Satellite Beach, FL | bcampanini@fit.edu

DAY OF
GIVING
2020

\$420,038

Total Raised

2,539

Gifts Received

Thank you,
Panthers!



#participationmatters

SUBMIT YOUR NEWS TO alumnotes@fit.edu

1970s

1 JOSEPH T. WALDEN '73 was recently appointed as an associate teaching professor for supply chain management at the University of Kansas. Walden also repeated as National Powerlifting Champion at the 2020 Drug Tested United States Powerlifting Association National Championships in Columbus, Ohio, while setting new world and national records in the deadlift.



2 DAVID TOMASKO '85 M.S., Ph.D., is the new executive director of the Sarasota Bay Estuary Program.

6 MAIA MCGUIRE '89, Ph.D., was named the associate director of extension and education with Florida Sea Grant.



1990s

5 DAN WILLIAMS '90 MBA, '95 Ph.D., received the SAE Magnus Hendrickson Innovation Award. Williams is director of ADAS and Autonomous Driving for ZF.

7 MATHIEU GOZARD '93 M.S. takes the helm of the IT solutions company Cimut as CEO.

8 JOHN GIVENS '94 was appointed to VirTra's board of directors. Givens currently serves as a military board advisor to Bohemia Interactive Simulations (BISim).

9 GARY PACILIO '94 M.S., a veteran of the fire service industry, has joined the REV Fire Group Company as director of operational excellence.

9 ROGER PROKIC '95 M.S. was recently promoted to senior program director for Alcyon Technical Services JV LLC. Prokic served as a civil servant for 10 years on the space shuttle launch team at Kennedy Space Center.

10 Maj. Gen. **CEDRIC T. WINS '95** M.S., U.S. Army retired, has been named interim superintendent of the Virginia Military Institute.



1980s

DANIEL LEVY '80, '83 MBA, was recently appointed head of international sales and marketing at Tambour, Israel's leading company in the paint and construction market.

ANTHONY CEGLIO '82 A.S., '84, was hired as the new director for Republic Airport in East Farmingdale, New York.

JONATHAN KOSHAR '83 MBA recently joined Ziplly Fiber as director of support operations.

2 EDWARD TRIEBELL '83 joined Anju Software as a senior director of business development for its eClinical division. Triebell also serves as advisor to Health Cloud Solutions.

3 LEMUEL AGUAYO '83, '92 M.S., a senior project engineer on the Artemis program, received the Lockheed Martin Hispanic Organization for Leadership and Awareness (HOLA) Luminary Award.

4 JOHN DUTTON '84 recently joined Novel Engineering as a business development manager at the company's Melbourne, Florida, headquarters.

Fall Gatherings

BY THE NUMBERS



7

events



435
attendees

ON DIVERSE TOPICS

WEBINARS

- Growth mindset

LUNCH AND LEARN LECTURES

- Climate change
- Election history

VIRTUAL INTERACTIVE CLASSES

- Wine and cheese tasting
- Mixology
- Lights of London city tour

TRIVIA NIGHTS

- Harry Potter

continued on page 34



11



12



13



14



15



16



17



18



19

continued from page 33

11 W. DALE CROSSLEY JR. '96 MSM was named a member of Raymond James' 2021 Chairman's Council for the second consecutive year.

12 YVONNE PARAWAY '98 M.S., Ph.D., has been promoted to assistant vice president of outpatient nursing services at Kennedy Krieger Institute.

2000s

13 HAMED AL-BUSAIDI '00, Ph.D., was recently named governor of Al-Buraimi in Muscat, Oman.

Col. **KATHERINE GRAEF** '01 MSM is retiring from the U.S. Army after 30 years of service. In her final military role, she served as logistics director for Special Operations Command Africa. She is also an inaugural member of the Halifax International Security Forum's Peace with Women Fellowship.

14 SETH MEDFORD '02 and Elizabeth Wyman were wed in August 2020 in Keene, NH. The couple's dog, Baxter Rose, served as flower girl, and Baxter's canine cousin, Finley Bear, served as ring bearer.

15 NEIL BHOLA '03, Ph.D., was promoted to principal scientist at Ideaya Biosciences.

MICHAEL SCHINDEL '03 and Eileen Mullowney were

married at the Trapp Family Lodge in Stowe, Vermont, in September 2020.

MEHDI HAMEER '04 joins Infobip Tanzania as senior sales manager.

REMCO KUYPER '05 has been appointed software development manager at Amazon Web Services, leading a team of software engineers to develop static code analysis tools.

16 KENNETH COTTLE '07 secured a role with Riot Games as an engineering manager, working on the player platform team.

17 ERICA WALES '07, Ph.D., recently joined ASRC Federal as a budget analyst for the National Oceanic and Atmospheric Administration's (NOAA) satellite program.

2010s

Lt. Col. **RANDOLPH SCOTT CARPENTER** '10 M.S. was named the new Holston Army Ammunition Plant commander.

18 DARREN WILSON '10 was appointed airport manager for F. D. Roosevelt Airport in Sint Eustatius, Dutch Caribbean, locally known as Statia.

CECILIA DOCKERY '11 transitioned to a new role as director of student conduct at Weber State University in Ogden, Utah.

JEFFREY EUBANKS '11 M.S. was recently appointed as senior director of engineering for Vocera Communications.

19 GUILLERMO NARANJO '11, Ph.D., works as an electronic warfare engineer with Syracuse Research Corporation and lectures physics at University of Texas.

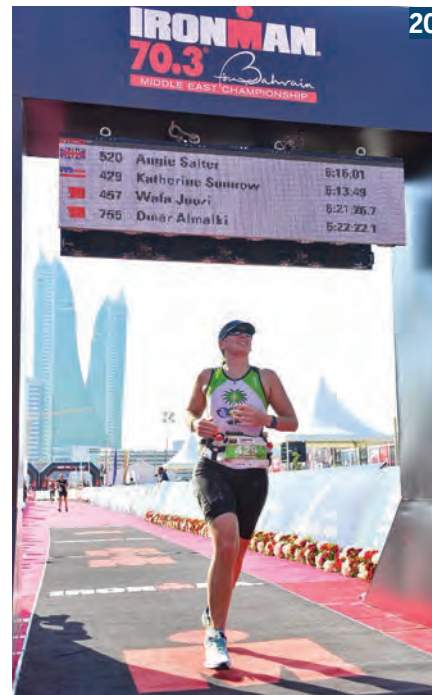
NATHAN STAFFEL '11 M.S. recently joined Guidehouse as a senior consultant, solving emerging technical challenges in the national security sector. Previously, he served five years in the FBI as a special agent.

20 KATE SUMROW '11 M.S. is a director for KPMG Middle East, based out of Riyadh, Saudi Arabia. A retired U.S. Army captain, she also has competed at the USA Triathlon Age Group National Championships and completed three Ironman 70.3 races.

21 DOMINIC ALPUCHE '12 MBA was hired as the CFO for Options for Learning, an organization that provides tools for positive foundations for school, social and life success.

22 SRIKANTH CHETLUR '12 MBA, a professional scrum master and product owner, recently became a software implementation consultant with One Inc.

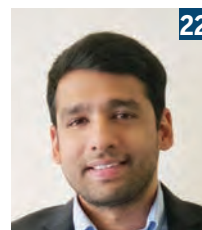
ISHWARYA THIRUNARAYANA '12 M.S. joined ZAP Surgical Systems as a TPS software engineer.



20



21



22



23

23 DAVID ALVARADO '13, '14 M.S., and **ERIN PITTMAN** '16 were married in October 2020.

24 JOHN ROBERTSON '13, Ph.D., started a new role as a Dragon development engineer at SpaceX in Hawthorne, California, where he is working on space solar array development.

25 SAI YELLEPEDDI '13 M.S. transitioned to a new role as technical advisor in cloud computing with Microsoft. He previously served as a cloud support engineer.

YICHAO YU '13, Ph.D., joined Boehringer Ingelheim as associate director of project clinical pharmacokineticist. Previously, she was a clinical assistant professor in University of Florida's biostatistics department.

26 OLIVIA BENJAMIN '14 MBA has joined the University of Virginia Licensing & Ventures Group as manager of financial operations.

27 JAMIE LANDERS FOSTER '14 MBA was promoted to East Rome branch manager with Greater Community Bank.

28 MARCO ROSSI BAZZANI '14 M.S. was named business

unit manager for the portfolio group at Fluke Corporation, a Fortive company. In his new role, Bazzani will be managing Amprobe and Pacific Laser Systems tools businesses globally.

EVAN COSGROVE '15, '20 M.S., '20 Ph.D., joined MathWorks as an application support engineer.

ANTHONY HICKS '15 embarked on a new career as a project engineer with Brax Company in Valley Center, California. Previously, Hicks served three years in the U.S. Army as a paratrooper.

TABITHA KRIEGH '15 recently spoke on behalf of Northrop Grumman's Innovation Center of Excellence at the New York Maker Faire "Nimble and Creative: Space to Make in the Workplace." She founded the Space Coast's FabLab, a community nonprofit focused on STEM education, before joining Northrop Grumman.

29 REBECCA GRANGER '16 MBA, a certified PMP, was promoted to director of strategic programs at Alluvionic Inc., specializing in project management, process improvement (CMMI, CMMC, Lean Six

Sigma) and engineering consulting in both the commercial and government sectors.

30 BRYSON HALEY '16 was promoted to supply chain manager at Sierra Nevada Corporation (SNC), overseeing all procurement proposal activity for the aircraft and space divisions within SNC.

AHMAD HIJAZI '16 serves as climate change specialist with the United Nations Development Programme in Jordan, helping support his country's government in meeting its commitment to the Paris Agreement.

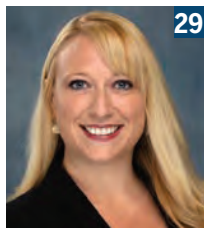
ANDREW SANTANA '16 M.S. serves as a logistics management specialist assigned to the AMCOM Logistics Center.

ARIANA TATE '16 has joined Liberty IT Solutions as a Salesforce developer.

31 JONATHAN WALLACE '16, '18 MBA, became an agency owner with Farmers Insurance Group.

32 KEITH CRISMAN '17 M.S., '20 Ph.D., upon completing his doctorate in human-centered design, joined the faculty at the University of North Dakota as an assistant professor.

continued on page 36



GATHERINGS: AT A GLANCE

VIRTUAL TRIVIA NIGHT:
Harry Potter



80
attendees



33
teams



Best Costume: Stephanie Zuitember II (as Lucius Malfoy)

BEST-KNOWN TRIVIA:

97% of teams correctly answered:

Which Hogwarts tower is the tallest?

A: Astronomy Tower

LEAST-KNOWN TRIVIA:

18% of teams correctly answered:

What entertainment was Professor Dumbledore rumored to have booked for the Halloween feast in *Harry Potter and the Chamber of Secrets*?

A: Dancing skeletons

ALUMNOTES

continued from page 35

33 KRISTIN KOPPERUD '17 Ph.D. recently became operations project manager for the International Space Station National Laboratory. Kopperud met her husband, **VINCENT TRIMBOLI** '16, while they were studying at Florida Tech and were married in December 2019. Trimboli recently joined NASA's Launch Services Program as an avionics system engineer.

JEFF GILBERT '17 MBA was recently promoted to senior customer engineer with Microsoft. Gilbert had a 17 ½-year U.S. Army career prior to his 15 years working with Microsoft.

34 ANDRES HERNANDEZ '17 is working for Ørsted, a Denmark-based renewable energy firm, where he will be supporting the development of the largest offshore wind energy park in the United States.

VINODH KUMAR MADHIPATLA '17 M.S. has joined the intent-based networking group at CISCO. He is working with DNA Spaces, a product that helps businesses safely open their offices with tracking and social distancing.

Maj. **JAIRUS ROBERTS** '17 M.S. was selected to serve as the U.S. Army 7th Infantry Division transportation officer (DTO) at Joint Base Lewis-McChord, Washington state, upon completion of the Command and General Staff College in residence at Fort Leavenworth, Kansas.

35 JORDAN SYMONDS '17 was recently appointed head of creative for CompEdge Consulting AS.

36 Capt. NANA ADJEI '18 M.S., active-duty U.S. Army, is serving as Unit Commander of the Headquarters and Headquarters Detachment of the 39th

Transportation Battalion in the U.S. European Command territory.

JIM HARRELL '18 started a new position as a software engineer with Northrop Grumman.

CHARLES MORTENSEN '18 joined Amazon as an IT support associate.

37 PRIYADHARSHAN NADUNAYAGAM '18 was recently promoted to business development manager for the Asia and South Pacific Region with Innegra Technologies.

38 KATARINA BOROVIKA '19 M.S. joined Hyundai Kia America Technical Center as a vehicle cybersecurity engineer.

39 LAMONT BRYANT '19 M.S. recently landed a position as an operations research analyst with CACI International Inc.

DIKSHA CHAVAN '19 M.S. has joined Steep Hill as a lab analyst.

LOUIS FALCARO '19 was recently appointed assistant bookkeeper with Brook Field Services.

TUCKER LEBRETON '19 is a manufacturing specialist for Sanofi.

40 FEDERICA PALA '19 has joined X-Culture as a global virtual team senior coach.

Lt. Col. **STEPHEN WARD** '19 M.S., as a civil affairs expert, joined the garrison leadership team at Fort Meade, taking on command of Headquarters Command Battalion. His prior assignment was as operations officer for the Special Representative for Afghanistan Reconciliation at the American Embassy in Kabul, Afghanistan.

2020s

WILLIAM (LEE) EDWARDS '20 M.S. is a software engineer at Amazon.



In October 2020, **MARIA FERNANDEZ** '04 advanced her career to regional president at Tier 4 Advisors, which helps its clients with IT infrastructure-related services. But while some find hobbies like sports, music or collections, Fernandez's idea of filling downtime is much grander in scale: she is building a luxury eco-resort in the Chilean Patagonia.

"When my partner took me to Patagonia, I was overtaken by its vastness, untouched wilderness and raw, breathtaking beauty," says Fernandez. "Patagonia became a common topic in our 'dreaming' conversations, and soon we said, 'Well, what's stopping us from doing something wonderful here?'"

She drew upon her transferable job skills—negotiations, project and program management, international teamwork and regulations—to start Eko Patagonia, this side venture of vast proportions. Then, in pursuit of this new dream, she learned even more—business plans and funding, international real estate, architecture, reusable energy and remote-area construction logistics, to name a few.

"It really was a brand-new adventure with a ton of learning! I say it was like doing an MBA of Hard Knocks," she says, but adds that it is the best decision of her life. Fernandez is building something one of a kind: modern, Western luxury in a rustic, untouched part of the world while remaining as ecological as possible.

Repurposed shipping containers found on-site form the lodging structures. Grey water is reused or returned to the land. Reclaimed fishing nets wrap walkways to prevent slips. Reclaimed light poles are given new life as raw material used throughout the property.



Construction on the Eko Patagonia resort

The goal is to not subtract from the land for resources or add to it with waste—and all without sacrificing comfort, maintaining the five-star level of luxury that is rare in the region.

"We want to share the untouched beauty that the region offers and keep it that way for generations!" Fernandez says. Eko Patagonia's grand opening is scheduled for fall 2021.

TV SHOW OF THE MOMENT?: "The Queen's Gambit."

ALTERNATE CAREER?: Travel blogger and international philanthropist.

GO-TO SNACK?: Anything with Nutella on it.

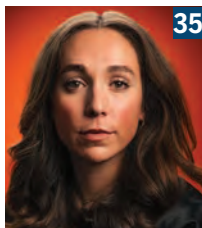
FAVORITE FLORIDA TECH MEMORY?: Evening RA rounds with my residents.



33



34



35



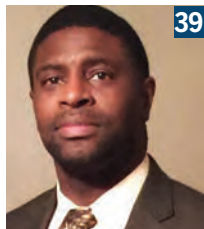
36



38



37



39



42



40



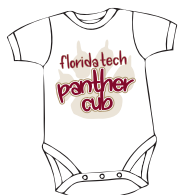
41

41 CHRISTINA HIND '20 M.S. joined a systems engineering rotational program with Northrop Grumman.

KARLISTA MARONEY '20 accepted a marketing director role with Harbor City Capital.

42 CHRISTOPHER MILLSAP '20 was appointed CTO for Avancen MOD Corporation after 10 years with the company in new medical technology development.

PATRICK SPANGLER '20 is a certified load planner working for Worldwide Flight services.

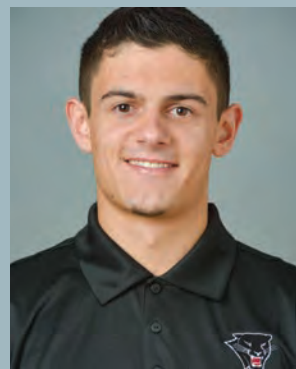


Welcomed a Panther Cub?

Contact us for a free infant T-shirt, bib or onesie. Then, send a photo of your cub in his/her Panther swag with an AlumNote about yourself to share in the magazine.

For details: alumni@fit.edu

A belief in the power of hard work for the greater good is what drives **DYLAN CROSS '19** in his entrepreneurial journey. Committed to improving the health and vitality of our oceans and everything that relies on them, he has launched Sea Threads, a startup focused on producing garments from 100% certified ocean plastic.



“My idea started off simple, but sometimes that’s all it takes,” says Cross. While earning his undergraduate degree in business and environmental studies, he and some friends researched environmentally friendly clothing. “The common trend was using post-consumer plastic from landfills. I realized the need for a greater impact.”

He explains that most plastic taken from the ocean goes to a landfill, a valiant but one-way process that only moves the waste rather than removing it. Directly turning the collected ocean plastic into garments not only saves money but transforms pollution into product.

Cross came to Florida Tech in 2015 with a love for the ocean and everything in it. His Florida Tech experiences in studying the regional environments of the Indian River Lagoon, Key West, Galapagos and Cuba stuck with him as he pursued his business degree and now, post-graduation, has joined the two passions into one venture.

Sea Threads is in its early stages, with its first products—face masks and neck gaiters—just launched and long-sleeved performance shirts coming this spring. As such, the business is an operation of one, with Cross himself managing business services via contract and under the mentorship of business advisors through the Melbourne, Florida, startup incubator Groundswell Startups.

As someone in the throes of early-stage startup life, Cross offers a piece of advice for entrepreneurial hopefuls: practice self-evaluation. “Your mission needs to be something that you are personally passionate enough about to make the needed sacrifices to achieve,” he says.

EARLY BIRD OR NIGHT OWL:

Total night owl.

MOST IMPORTANT QUALITY IN A BUSINESS LEADER?:

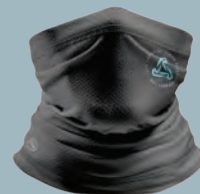
Visionary.

YOUR SUPERPOWER?:

Ability to talk to animals.

FAVORITE FLORIDA TECH MEMORY?:

Camping in Key West during a tropical storm.



GATHERINGS: AT A GLANCE

INTERACTIVE ONLINE CLASSES:

MIXOLOGY



44 attendees



3 cocktails



Jessica Widmark '16 and Drake Hillman '15

VIRTUAL TOURS:

Lights of London



131 attendees

IN MEMORIAM

PRISCILLA SPAFFORD COOPER '70, '76 M.S., died Sept. 21, 2020. An avid consumer of knowledge, Priscilla obtained her bachelor's degree in mathematical sciences/computer science and her master's degree in computer science. She taught at Melbourne Central Catholic High School and later at Florida Tech. Priscilla went on to work for many years as a computer engineer for NASA and supported the Kennedy Space Center in Cape Canaveral, Florida.

KATHLEEN EDWARDS '87 M.S. passed away August 2020. She earned her master's in systems management and was retired as an operations research analyst with the U.S. Army.

FLORENCIO PINELA CONTRERAS '87 M.S. passed away in August 2020. Contreras, who earned his master's degree in physics, lived and worked in Ecuador as a physics instructor at Escuela Superior Politecnica del Litoral and was a member of the Ecuadorian Atomic Energy Commission.

CAROLYN PEEPLES FARRIOR '88 MBA, director of admissions for online and off-campus programs,

passed away Dec. 17. Farrior served the university for 35 years in various roles and was pursuing her doctorate in business administration.

TED MAJORS JR. '08 M.S., who retired from Newport News Shipbuilding after 35 years of service, died September 2020. He earned his master's degree in acquisition and contract management.

TRAVIS KNIGHT '15 M.S., passed away Dec. 2 at age 32. After earning a degree in human factors, Knight started a new career as a psychiatric social worker in 2017.

REX EAGAN, a former instructor at Florida Tech, passed away Oct. 7, 2020, at the age of 77. A commissioned Navy officer, Eagan retired with the rank of commander in the U.S. Naval Reserve.

JAMES PATTERSON, aerospace, physics and space sciences professor emeritus and department head for 15 years, passed away Oct. 22, 2020 in Rapid City, South Dakota, where he lived since his 1999 retirement.

LAWRENCE J. PIVEC JR., a former instructor at Florida Tech's Jensen Beach campus, passed

away in August 2020. An avid waterman, scuba diver and surfer, Pivec enjoyed a long career related to environmental marine studies.

PETER PORCHE, a Florida Tech employee for the past 18 years who brought a distinguished military and security industry background to his role as facilities security officer, contract management, passed away Dec. 9 at Palm Bay Hospital. He was 83.

GORDON RING, who served as Florida Tech alumni director from 1993 to 1999 between stints at the East-West Center in Hawaii, passed away Jan. 25. Ring played an integral role in expanding Florida Tech's outreach to alumni and was instrumental in the launch of the memorial brick terrace in front of the Keuper Building and the Advocates Club, which recognized outstanding faculty and staff.

ALAN ROSIENE, an assistant professor of English and languages and associate head of the School of Arts and Communication, died Jan. 16 from complications related to COVID-19. In his 28-year career at Florida Tech, he amassed many awards, reflecting his impact and passion that extended well beyond the classroom.

FLORIDA TECH

BE PART OF THE
TRADITION

The Official Ring of
Florida Institute of Technology

See Florida Tech's ring collection at BALFOUR.COM/FIT



balfour.



CURRENT CITY: Chicago.

HOBBIES: Golfing and hiking.

FAVORITE FLORIDA TECH

MEMORY: Arriving at the SUB on a bus from Orlando International Airport after traveling 8,000 miles on planes, trains and automobiles—wide eyed, anxious, fearless and oh, so naive! And getting married and spending our last semester together on campus.

PANTHER PROFILE

Sanjay Rishi '85 M.S., D.M.

One of the most highly discussed topics in business this year has been re-entry into the workplace. Most companies have struggled with whether to do it, when to do it and how to do it safely. Our own **SANJAY RISHI** '85 M.S., D.M., has become a go-to expert on the topic.

As CEO of corporate solutions in the Americas at JLL, a global real estate investment management firm, Rishi's daily role involves helping clients create, shape and manage the future of work by enhancing the performance of their workplaces, real estate portfolios and people. As the pandemic persisted into the second half of 2020, his role evolved into interacting with clients' C-suite executives to share experience and best practices related to workplace re-entry.

"We happen to be in the business of healthy workplaces, a topic that has never been more top-of-mind for our clients," says Rishi. "The nature of workplaces has evolved rapidly during the pandemic. Topics like health and wellness in the workplace, clean air, work from anywhere, digital transformation and technology in the workplace are all ones that organizations are grappling with and seek our ideas and experiences of."

Indeed, in the last year, Rishi has been in the media spotlight, offering

guidance to business leaders who aren't sure what to do in the preternatural times we find ourselves living.

"First and foremost, the attention to safe and healthy workplaces cannot be overstated," says Rishi. "It is just as important to ensure the right processes as it is to assure people coming back to work that they will be safe going back to their families."

Last fall, he wrote in a blog post for the National Association for Industrial and Office Parks that workplace leaders must embrace the hybrid workspace, attract talent to social, safe spaces and create a cohesive community.

"Connecting productivity to purpose—for the good of all," will be the challenge, Rishi wrote, when designing offices moving forward.

Is there one perfect recipe for post-pandemic workplace success? Not according to Rishi, although he says, "Being in the office has been and will continue to be critical for organizational culture, collaboration and innovation." Regardless, he believes that talent attraction and retention should be the principal criteria to evaluate the right path forward for each organization.

Undoubtedly, this is something many would agree is critical to a business at any time, not just as we recover from the pandemic—and this is not something new to Rishi. As an

executive leader at JLL and previously at IBM, Johnson Controls Automotive and PricewaterhouseCoopers, he has helped set corporate direction and strategy for over 20 years.

Although he has established a successful business career, Rishi says if he were to do any other job, he would teach. He has an obvious love of learning; he followed his mechanical engineering undergraduate degree at Birla Institute of Technology in India with a master's degree in systems management from Florida Tech and then a doctoral degree from Walsh College in management. His busy career in the Chicago area may keep him from joining the Florida Tech faculty; however, he currently serves on the advisory board for the university's Nathan M. Bisk College of Business.

"For me, Florida Tech provided an environment where I could learn as much from the classroom as from the community," Rishi says. "A safe, vibrant student population—from many walks of life and diverse backgrounds and with a broad spectrum of experience levels—provided for a foundation that has proven to be strong."

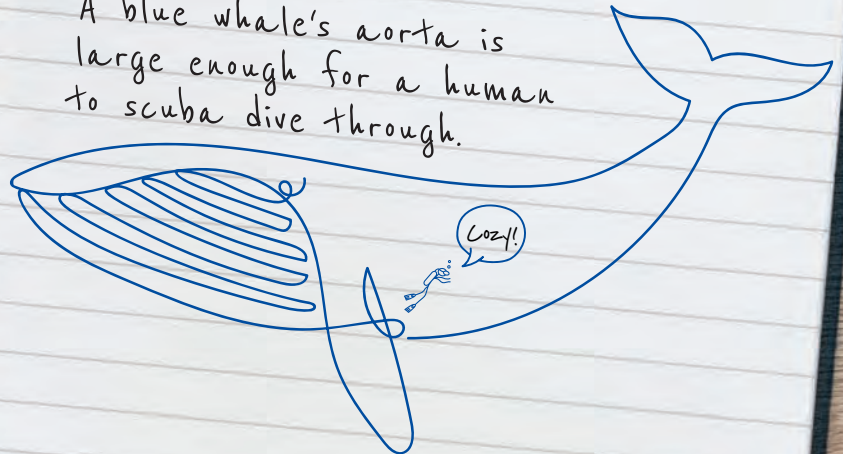


Deep Blue Trivia

Along with Florida Tech's top engineering, aerospace and biomedical programs, the university is consistently lauded for our expertise in ocean engineering and marine sciences. Minutes from the Indian River Lagoon and fewer than 10 miles from the Atlantic Ocean, our location provides ample access for cutting-edge marine research ... but also fun!

Did you know the part of your immune system that makes antibodies in response to vaccines first evolved in sharks? Impress your friends with your knowledge of this and other deep blue trivia, courtesy of ocean engineering and marine sciences assistant professor Toby Daly-Engel.

A blue whale's aorta is large enough for a human to scuba dive through.



Pigs kill more people per year than sharks.



The organ that a dolphin uses for sonar is called its melon.

