

SPECTRUM

FLORIDA STATE UNIVERSITY COLLEGE OF ARTS & SCIENCES

Summer 2022





From the Dean

Spring also marked the conclusion of President Richard McCullough's first academic year at the helm of the university. Over these last several months, McCullough shepherded a number of fresh initiatives and led the university through a very productive legislative session. His early activities have included the launch of two important searches, one for the vice president for development and advancement, and the other for the vice president for research (our own Mark Riley, currently dean of the FSU Graduate School, is serving as interim for the latter). I am pleased the president took time out of his busy schedule to sit down with Spectrum editor-in-chief Heather Athey for an interview to give our readers the chance to learn more about his vision for the university and the opportunities his leadership presents for the college.

Welcome to the Summer 2022 edition of Spectrum magazine, the alumni publication of Florida State University's College of Arts and Sciences. This spring, we closed out an academic year that included a return to more of the events, engagements, and opportunities we know and expect as part of the FSU community. Our students, faculty and staff worked tirelessly to overcome lingering pandemic-related challenges and have reinvigorated campus life.

In May, we celebrated a traditional FSU graduation, capping off a year that saw nearly 2,600 Arts and Sciences graduate and undergraduate students successfully complete their degree programs. Among these graduates is the first student to complete FSU's Interdisciplinary Data Science Master's Degree Program, which welcomed its inaugural class only last fall and is experiencing substantial growth in applicants for the coming year. I am so proud to welcome these graduates as alumni and am truly inspired by their drive and determination to achieve academic and career success.

Within the college, we are in the midst of recruiting and onboarding more than 30 new tenure-track faculty members. These talented individuals will help us sustain our longstanding commitments to excellence across all areas, from supporting student success to establishing and maintaining innovative research programs.

It is an exciting time to be an FSU Seminole, and I hope you find connection and community within these pages, as well as through our social media presence, where you can stay up to date on the college's latest news. As always, thank you for your support and for being part of the Arts and Sciences family.

A handwritten signature in black ink that reads "Sam Huckaba".

Sam Huckaba
Dean, College of Arts & Sciences

SPECTRUM

FLORIDA STATE UNIVERSITY COLLEGE OF ARTS & SCIENCES

FEATURES

6

Alumni Alight

Arts and Sciences grads use their expertise to change how people experience the world.

14

Student Success

From the sciences to the humanities, scholars are putting a personal spin on their fields.

22

Institutional Innovation

Researchers and administrators pair knowledge and technology to spark innovation.

Give a gift that helps FSU and you

Are you looking for a way to make a significant gift to the Florida State University Foundation as part of your philanthropic goals? If you've built up a sizable estate but wish to receive reliable payments from your present investments, a charitable remainder trust may be the right solution for you.

Benefits of a charitable remainder trust include:

- Potential for a partial charitable income tax deduction,
- Potential for increased income, and
- Up-front capital gains tax avoidance.

Charitable remainder trusts generate payments for the donor in two ways. The annuity trust pays you, each year, the same dollar amount you elected at the start of the agreement. Your payments stay the same, regardless of fluctuations in trust investments. On the other hand, the unitrust pays you, each year, a variable amount based on a fixed percentage of the fair market value of the trust's assets. The amount of your payments is redetermined annually: If the value of the trust increases, so does the amount of your payments. However, if the value decreases, so will the amount of your payments.

For more information about establishing a charitable remainder trust, or to make a gift, contact Nancy Smilowitz, the college's assistant dean for development, at 850.294.1034 or nsmilowitz@fsu.edu.



On the cover

Since 2005, the Legacy Fountain has anchored the verdant expanse of Landis Green as a monument to Florida State University's evolution from the Florida State College for Women, to which the College of Arts and Sciences traces its roots, into the coeducational, top-tier research university it is today. The fountain's creator, painter Edward Jonas, received his Bachelor of Fine Arts from FSU in 1971. As seen from above on this issue's cover, the FSU seal is rendered in Venetian glass tiles hand-set by students working with FSU's Master Craftsman Studio. Photo by Amy Walden. Production assistance by McKenzie Harris. Photo editing by Tom Morgan. Special thanks to FSU Facilities' Russ Cooper and Marc Helton, and Master Craftsman Studio's Carlin "Cee" Hester.

Nole Notes

The top news from
around the college



Arts and Sciences programs rise in latest U.S. News Graduate School rankings

Graduate and professional programs in the Florida State University College of Arts and Sciences continue to rank among the best in the nation, according to U.S. News & World Report's 2023 edition of "Best Graduate Schools."

Twelve graduate programs are ranked in the top 100 among peer public universities, according to the annual rankings released this spring. Disciplines periodically ranked by U.S. News this cycle include biological science, chemistry, earth sciences and statistics, all of which made significant improvements.

The Department of Biological Science's graduate program jumped 32 spots overall and is ranked 43rd among public universities, and the earth sciences program, formerly geological sciences, climbed 37 places and is ranked 44th among public universities. The Department of Chemistry and Biochemistry program rose 18 spots overall and is now ranked 27th among public universities, while mathematics climbed four spots overall and is ranked 41st among public universities.

Computer science, which ranked 49th among public universities, maintained its position from the last ranking in 2018, and physics and psychology ranked 35th, respectively, among public universities.

FSU's graduate program in biostatistics, part of the Department of Statistics, was ranked for the first time in 2022 as 52nd among all national universities and 31st among public universities. Statistics rose 14 spots, ranking 30th among all national universities and 21st among public universities.

The Best Graduate Schools rankings are based on two types of data: expert opinion about program excellence and statistical indicators that measure the quality of a school's faculty, research and students.



Maxine Montgomery

Prolific scholar of African American Studies named 2022-23 Robert O. Lawton Distinguished Professor

Maxine Montgomery, a professor in the Department of English since 1988, has been named FSU's 2022-23 Robert O. Lawton Distinguished Professor, the highest honor FSU's faculty can bestow on a colleague.

One of the premier scholars of African American literature in the country, Montgomery has won five university teaching awards, published eight books and created 11 new courses in the English department — all with a focus on African American literature. She also has set forth programmatic efforts in support of diversity, equity and inclusion, and in 2020-21, she served

as chair of the FSU President's Task Force on Anti-Racism, Equity and Inclusion.

"It's rewarding for me to be at this point in my career and to have an experience where other people have acknowledged my work over the course of three-plus decades," Montgomery said.

Montgomery, a two-time FSU alumna, joined the department's faculty in 1988. She has published widely on the works of Black women authors Gloria Naylor, Edwidge Danticat and especially Toni Morrison. She specializes in African diaspora literature and culture, plus Black apocalyptic and postapocalyptic literature and expressive culture, among other interests, and has served on 71 Ph.D. committees and 40 M.A. committees.

MagLab director, physics professor inducted into the National Academy of Sciences

Greg Boebinger, director of the FSU-headquartered National High Magnetic Field Laboratory and a professor in the FSU Department of Physics, was inducted into the National Academy of Sciences, an esteemed designation recognizing his distinguished career in physics, this spring.



Greg Boebinger

Boebinger joins eight current and retired FSU faculty as members of a national academy, including physics professor and current MagLab Chief Scientist Laura Greene. The National Academy of Sciences was established under a congressional charter and signed by President Abraham Lincoln in 1863 to provide science and technology expertise to the nation.



Brian Inouye

Biological scientist named AAAS fellow

Professor of biological science Brian Inouye has been named a fellow of the American Association for the Advancement of Science, a lifetime distinction that honors contributions to both science and technology. He will be inducted into the prestigious society this year alongside 563 scientists, engineers, and innovators spanning 24 scientific disciplines.

Inouye, who came to FSU in 2001, was selected for his contributions to the field of evolutionary ecology, specifically his work on how variation among individual plants and insects affects overall population dynamics and species interactions. He has previously been named a Fulbright Scholar to Sweden and a National Science Foundation postdoctoral fellow.

The AAAS, formed in 1848, was the first permanent organization established to promote the development of science and engineering at a national level and represent the interests of all its disciplines. The tradition of fellows stretches back to 1874, and Inouye joins a cohort of talented scientists whose ranks have been held by fellows such as Thomas Edison, W.E.B. DuBois, Maria Mitchell, Steven Chu, Ellen Ochoa and Irwin M. Jacobs.

Psychologist receives \$1.8M grant to study eating disorders, obesity

Xiaobing Zhang, an assistant professor with the Program in Neuroscience and the Department of Psychology, has received a five-year, \$1.8 million grant from the National Institute of

Diabetes and Digestive and Kidney Diseases, part of the National Institutes of Health, to study occurrences in specific regions of the brain — neural circuits — that motivate us to reach for food and the impact these processes have on eating habits and weight gain.

"We are very excited about this award from NIH to support our research to further study neural signaling that regulates food intake by targeting zona incerta and paraventricular thalamus, two brain areas with inhibitory neural connections for feeding control revealed by our previous findings," Zhang said. "We hope to understand how and when these pathways are activated for feeding control. More importantly, we hope to reveal how these pathways are altered by a chronic high-fat diet that leads to overeating and obesity."

Obesity has become a global health threat due to the increased risk of obesity-related complications, including heart disease, diabetes and end-stage renal disease. In the United States, the age-adjusted prevalence of obesity in adults increased to more than 40 percent in 2018, according to the Centers for Disease Control and Prevention. Experts warn that the high prevalence of obese and overweight individuals is largely attributable to the widespread overconsumption of easily available, energy-dense foods high in fat and sugar.



Daniel Okamoto

Biologist named 2022 Pew fellow in marine conservation

Daniel Okamoto, an assistant professor in the Department of Biological Science, has been named by The Pew Charitable Trusts as a recipient of the 2022 Pew fellowship in marine conservation. He will receive \$150,000 over three

years to study northern abalone populations in British Columbia's Haida Gwaii archipelago, where abalone — a species of large sea snail — are a traditional and culturally important food source for the Indigenous Canadian First Nations.

Populations of northern abalone have declined in recent decades in Haida Gwaii, after Canadian commercial fisheries began targeting the mollusks in the mid-20th century. Okamoto's research will focus on informing efforts to balance the ecological and cultural importance of abalone to Haida Gwaii's Indigenous population in the face of climate change and the recovery of predators.

The Pew Charitable Trusts, a global nongovernmental organization, has recognized 195 marine fellows spanning 41 countries over the past 26 years. Okamoto is among six fellows selected for 2022 and is just the second FSU faculty member ever to receive the honor.


Religion faculty awarded Luce Foundation grant to examine race, build health equity

FSU assistant professors of religion Jamil Drake and Laura McTighe have received a \$250,000 grant from the Henry Luce Foundation's Religion and Theology Program to examine racial justice, Black political activism and religion in the American South and to document, study and challenge structures that drive health disparities in the region.

Drake and McTighe will use the grant to build a digital archive around the work of health justice titled, "The Callie House Project: Religion and Public Health in the Black Experience in the American South." Over the next three years, they will work in partnership with Black Southerners to analyze health disparities in the studied communities and provide evidence to suggest new policy changes.

This project is part of a new grant-making initiative from the Henry Luce Foundation's Religion and Theology Program on advancing public knowledge on the topic of race, justice and religion in America. <

Medical Maverick

A full-length portrait of Air Force Lt. Col. Joshua Tyler standing in a desert environment. He is wearing a camouflage uniform, a tactical vest, a cap, and sunglasses. He is holding an M4-style rifle in his right hand and a helmet in his left. The background shows a construction site with a yellow excavator and various structures under a clear blue sky.

*Air Force
Lt. Col. Joshua
Tyler's dedication
spans military,
civilian and
alumni roles*

By Rodney Campbell

*Air Force Lt. Col. Joshua Tyler on
deployment. Courtesy photo.*

**Joshua Tyler has
always had vision.**

As he watched hotshot fighter jet pilots screaming across the big screen in the 1980s, Tyler knew he had a future in the military. Those dreams continued as he worked his way through the Boy Scouts, reaching the rank of Eagle Scout in his late teens, a natural entry point to military service.

But by the time he was ready to head to college at Florida State University, his long-term outlook started to blur: Maverick and Iceman would need to find a new wingman because a vision issue kept Tyler from qualifying for takeoff.

"I grew up in the Top Gun generation and wanted to be a fighter pilot," Tyler said. "But I wore contacts and, at the time, the Air Force wasn't letting you have corrective surgery and fly. My backup plan was the pre-med route because I loved science."

Undaunted, he joined the Air Force ROTC program at FSU as he followed the pre-med track. After earning his biology degree, Tyler went on to earn his medical degree from the Uniformed Services University of the Health Sciences in Bethesda, Maryland, which prepares graduates to serve in the military's worldwide medical corps.

Now, as a lieutenant colonel stationed at Keesler Air Force Base in Biloxi, Mississippi, Tyler is chief of colon and rectal surgery and director of robotic surgery at Merit Health, a nine-hospital network in the state. He has been a pioneer in robotic surgery since moving to Mississippi in 2014, when he started the Air Force's Da Vinci XI program.

When someone in Mississippi undergoes robotic surgery for colon or rectal cancer, Tyler or someone he trained is at the controls.

"When I got to Mississippi, most colon and rectal cancer surgery was being done with big incisions," he said. "In a lot of ways at the time, and even now, Mississippi tends to be about 10 to 20 years behind in some medical trends."

Robotic surgery allows doctors to perform many types of complex procedures with more precision, flexibility and control than is possible via conventional techniques — four robotic arms are used to perform the surgeries, using small incisions.

Having surgeons in the state using robotic methods has improved access to quality health care. Until recently, people insured through the Affordable Care Act lacked options since they



Tyler, 81st Surgical Operations Squadron, and Maj. Scott Thallemer, 81st MSGS InDORSE robot coordinator, pose for a photo in the Clinical Research Lab on Keesler Air Force Base, Mississippi, June 27, 2019. U.S. Air Force photo by Airman 1st Class Kimberly L. Mueller.

couldn't cross the Louisiana state line to have surgery in New Orleans.

"Patients usually went to see general surgeons," said Tyler, who also works in a volunteer civilian practice serving the local nonmilitary community. "I'm a general surgeon too, but there's a reason for subspecialty training. We have improved outcomes and access to care."

Tyler is also founder and director of the Institute for Defense Robotic Surgical Education, InDORSE, a joint enterprise between the Department of Defense and Intuitive Surgical, Da Vinci's manufacturer. InDORSE serves as a teaching facility for all DoD and Department of Veterans Affairs surgeons and is the only such facility in the nation.

He began the effort in 2015 to help federal surgeons embrace robotics, given that the government had invested \$300 million in the technology but lacked a clear training plan.

"Typically, [surgeons] have to go to training hosted by the manufacturer at its site, which is cost-prohibitive for government employees," Tyler explained. "[For civilian doctors,] usually, the manufacturer pays for it but you can't do that as a government employee because it's considered a gift. I saw the need for [military doctors] to do trainings in-house. We eventually got a second robot and increased our capacity."

Beyond his military and medical service, Tyler also continues to give back to his alma mater

— he is a lifetime member of the FSU Alumni Association and part of Seminole Boosters and the FSU Foundation's President's Club. He also serves on FSU Alumni Association board of directors and is a past director for the board advising student affairs.

"Tallahassee and FSU have given me so much in terms of who I am today that I wanted to invest and give back," Tyler said. "That's a common theme for us on the [Alumni Association] board. We're happy to serve an institution that has meant so much to us."

Tyler also mentors FSU AFROTC students, sharing his experience with cadets interested in pursuing medical careers.

"I talk to them about the Air Force's mission and what to expect in military medicine," he said. "We talk about saving for retirement and keeping their initial commitment short so they don't feel stuck."

FSU Alumni Association President/CEO Julie Decker is happy to have Tyler on her team.

"Josh Tyler is one of the most dedicated volunteer leaders I have had the pleasure of knowing throughout my time in higher education," Decker said. "Not only has Josh served our country bravely and selflessly, but he has also been a present board member, mentor to students, guest lecturer in classrooms, and more. We are lucky to call him a graduate of Florida State University." <



Sheree M. Mitchell. Courtesy photo.

Insider's Guide

Two-time Florida State alumna Sheree M. Mitchell uses languages, humanities background to curate authentic cultural experiences abroad

By McKenzie Harris

Brightly colored tourist shops and national monuments compete for visitors' attention in travel destinations across the globe, but it's often said that only the locals know the best spots. That is, unless you're Sheree M. Mitchell.

"You don't really know a country until you truly understand its soul," Mitchell said.

Mitchell, an alumna of Florida State's undergraduate and graduate Spanish programs, would know. As founder and president of Immersa Global, a tour operator and destination management company specializing in serving travelers interested in bespoke cultural experiences and authentic programs in Portugal, Mitchell was also recently named among the world's top travel experts by Travel + Leisure, the world's leading travel magazine. She credits much of her success to her love for languages.

Seeds of Interest

The trilingual traveler's fascination began in high school when she was inspired by a Spanish teacher and future mentor. Mitchell met her teacher's family in San José, Costa Rica, and spent many summers visiting the Central American country, honing her fluency as she embedded herself in a new culture.

Those summers abroad were absolutely life-changing, and once I became fluent in Spanish, I was determined to help other Americans do the same."

— Sheree Mitchell

"Those summers abroad were absolutely life-changing, and once I became fluent in Spanish, I was determined to help other Americans do the same," Mitchell said.

Establishing Roots

As an undergraduate, Mitchell studied full-time, worked part-time for the Florida Department of Education, and continued spending three months abroad each year.

"I appreciated that FSU's modern languages and linguistics program is nationally ranked and enjoyed the fact that campus is culturally and ethnically diverse," she said. "After my first official visit, FSU just felt like the right place to be."

Mitchell earned bachelor's and master's degrees in Spanish in 2001 and 2004, respectively, before going on to spend nearly a decade teaching the language in Miami.

"While Immersa Global wasn't created right after graduation, the roots of the organization were planted while at FSU. The Beyond Borders program, through the Center for Global Engagement, invited me to manage one of its cultural immersion and service-project programs in Costa Rica," Mitchell said. "Without even knowing what it entailed, I accepted ... Costa Rica is a second home to me."

Following that experience, Mitchell knew she would eventually incorporate travel design into her career. Within her first year of teaching, she developed a language and cultural immersion program in Costa Rica for non-native and non-heritage Spanish-speaking students. This was so successful that it was extended to teachers and parents interested in learning Spanish, and she and a colleague created a similar, larger program in Spain the following year. Mitchell then revitalized an existing bilateral French-language and cultural-exchange program with a sister school in Aix-en-Provence, France, before transitioning into a business management role in an unrelated field.

Full Bloom

"After a few years, I felt the need to rediscover [myself], so I took a year-long solo sojourn around the world," Mitchell said. "It was a paradigm-shifting experience that shortly thereafter led to the official launch of Immersa Global, my lifelong dream. Now, I'm honored to be invited to speak about my [company], industry trends, and specific aspects of our work in Portugal at all sorts of events."

Among Mitchell's proudest accomplishments are speaking at two United Nations World Tourism Organization conferences, three New York Times Travel Shows, and the American Society of Travel Advisors Global Convention. She also serves as president of the American Society of Travel Advisors for Portugal.

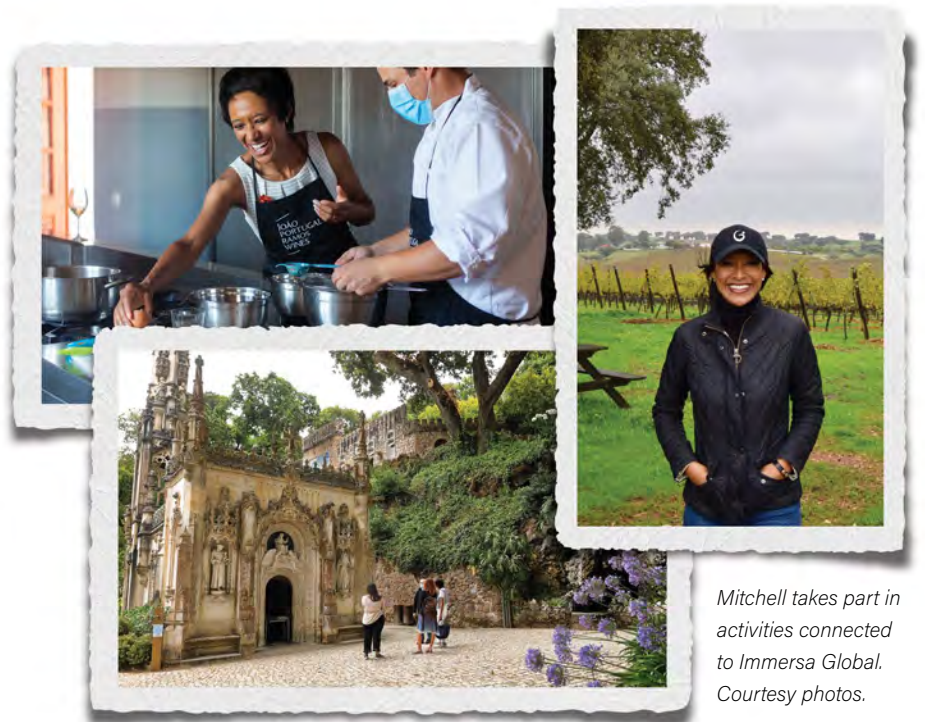
Mitchell's humanities foundation, she explained, has been critical to understanding different backgrounds, processing information, taking risks, navigating foreign environments, and learning how to blend in, all of which are crucial to international trade.

"With our department's focus on success in a diverse, multicultural, multilingual, and globalized

world, students are linguistically and culturally prepared for a variety of global careers in education, arts, government, and business," said Reinier Leushuis, chair of the Department of Modern Languages and Linguistics. "Sheree is a shining example of the diverse and successful careers graduates from our department embark upon."

Mitchell is also proud to give back to her alma mater — she is using her years of expertise to curate a once-in-a-lifetime experience for FSU graduates. The 10-day, tailor-made food and wine journey in Portugal is open exclusively to FSU alumni and will take place in Summer 2023.

"We're thrilled to have Sheree's company design and operate this program for us. Our travel program is all about experiencing the world with those who share your values and passions," said Brooke Robinson, FSU Alumni Association assistant director of membership and marketing. "Sheree's expertise and experience will enhance this trip and allow our travelers to see the world's wonders through the eyes of another 'Nole. We're so proud one of our alumni can take this connection to another level, and we cannot wait to follow her lead through Portugal." <



Mitchell takes part in activities connected to Immersa Global. Courtesy photos.



The Weather Man

FSU Basketball captain and meteorology grad student **Harrison Prieto** finds harmony in the clouds and on the court

By McKenzie Harris

The wild unpredictability of weather can be terrifying to some. For meteorology alumnus and graduate student Harrison Prieto, affectionally known to scholars and teammates alike as “The Weatherman,” the unknown is the most exciting part.

“Throughout my childhood, I remember watching storms from my neighbor’s porch and being captivated by what I saw, but I wanted so badly to understand why these storms happened,” Prieto said. “I’ve always known I wanted to become a meteorologist, and now, I’m finally able to investigate these curiosities.”

Natural Gifts

Growing up in Mandeville, Louisiana, a seven-year-old Prieto's dream of becoming a meteorologist was solidified watching the wrath of Mother Nature as Hurricane Katrina ripped through his hometown. However, while weather forecasting was always his main career goal, Prieto was also a gifted basketball player who elevated and inspired his teammates, and he received several recruitment offers from local schools. With no plans to pursue basketball after high school, he chose to attend Florida State University based on the outstanding research conducted through its meteorology program. However, after enrolling in Fall 2016, the 6-foot-8 Prieto decided to give basketball another shot and made the FSU Men's Basketball team as a walk-on during his freshman year.

"Harrison has bundles of natural talent, which allows him to compete at the highest level of college basketball while also excelling in the classroom," said Prieto's adviser, Rhys Parfitt, an assistant professor in the Department of Earth, Ocean and Atmospheric Science and affiliate faculty member at the Center for Ocean-Atmospheric Prediction Studies. "In the lab, his ability to pick up scientific methods and ideas very quickly has already resulted in some interesting research results I expect he will publish in the near future. Additionally, he is well-liked among members of the research group and is not afraid to put in the time to help others whenever he can."

Climate-inclined

Prieto researches atmospheric-oceanic interactions and how warm and cold fronts interact with the troposphere, the atmospheric layer that includes Earth's surface. This work has crucial impacts on understanding the global movement of pollution as well as the socio-economic effects and financial implications of pollution and extreme weather. Prieto is set to complete his master's degree in July, and fellow members of Parfitt's research group have expressed how much his team approach to science and his ability to see the interconnectedness of weather and society will be missed.

"When you think about it, weather really impacts everything. It impacts whether food will grow, where we may need more natural gas for power plants, and insurance companies need to know where natural disasters are more likely to happen. There are so many aspects of society affected by weather that are often not considered," Prieto said.

As a meteorology undergrad, Prieto excelled in an internship at the National Weather Service Forecast Office in Tallahassee, and was featured on The Weather Channel as well as that network's "Weather Geeks" podcast. Thanks to the FSU Weather program, a broadcasting training ground for meteorology undergrads, Prieto even fulfilled his childhood dream of forecasting on television.

"I can't imagine a more perfect fit anywhere. From my research in the meteorology program to my role on the basketball team, FSU has granted me the most rewarding opportunities," Prieto said. "Basketball and meteorology have also been wonderful complements to each other. Having these two differing responsibilities facilitates better time management and really helps me find a necessary balance."

Seminole Spirit

During Prieto's six years with FSU Basketball, the forward became well known for helping the Seminoles clinch the win, even under pressure, and helped contribute to nearly 140 Seminole

victories. During his final season, he clocked the most playing time of his career and became the first Seminole walk-on in decades to record a double-double, when a player reaches double figures in two key stats, including points, rebounds, assists, blocks or steals, in a single game. Prieto was a two-time team captain as well as a member of four NCAA tournament teams, the 2020 ACC championship team, and the Academic All-District 4 Men's Basketball Team organized by the College Sports Information Directors of America.

Prieto's accolades off the court are just as impressive: He was named five times each to the ACC Academic Honor Roll and the FSU Academic Dean's List and twice to the National Association of Basketball Coaches Academic Honors Court. He also won three Golden Torch Awards, through the FSU Athletics Academic Support Program.

"It would be hard to overstate what Harrison means to our team. For six years, he helped us develop our culture and instilled that culture into every single player who joined while he was here," said Leonard Hamilton, the two-decade veteran head coach of FSU Men's Basketball. "When we needed him on the court, he delivered because he was completely immersed in our program. He will be hard to replace because of the unbelievable person he has become during his career, and he truly represents the unconquered [Seminole] spirit." <



Far left: Harrison Prieto and his teammates on the Florida State University Men's Basketball team. Photo by Mike Olivella. Near left: Prieto in the FSU Earth, Ocean, and Atmospheric Science building. Photo by McKenzie Harris.



Left: Jorge Zamanillo. Courtesy photo. Above: Rendering of the Molina Family Latino Gallery. Courtesy Smithsonian National Museum of the American Latino.

Sometimes, the small moments that alter the course of one's life pass unnoticed and only in retrospect is all revealed.

Florida State University alumnus Jorge Zamanillo, the newly appointed founding director of the Smithsonian's National Museum of the American Latino, was 19 when he visited Washington, D.C., at the invitation of a friend going for a work trip.

Zamanillo's family didn't have money to travel when he was young, so the trip presented new opportunities. He toured sites throughout the nation's capital, taking in exhibits and expanding his world. The National Museum of American History, which he visited twice, left a strong impression.

"It was eye-opening this even existed," he said. "It was a transformative visit."

Zamanillo's appointment is the culmination of a 30-plus-year career spent telling the story of American Latinos at the regional level and decades of dedication to the scientific and administrative work that brings history and culture to life in museum settings. And that career started in Tallahassee.

After initially pursuing a music major at Miami Dade College, the New York-born, South Florida-raised Zamanillo transferred to FSU to study anthropology. On campus, he found mentors who continued to inspire him long after his 1991 graduation, including the late Glen Doran, former chair of the anthropology department, and present department chair Rochelle Marrinan.

"My studies at FSU gave me the academic background and hands-on field-school experience I needed," Zamanillo said. "The university encourages independent research."

A Lasting Legacy

Anthropology alumnus
Jorge Zamanillo
leads launch of the Smithsonian's newest museum

By Rodney Campbell

As an undergrad, he served as an archaeologist and project manager for the Miami-based nonprofit Archaeological and Historical Conservancy. He took part in preservation projects, worked on field excavation crews and wrote grant submissions, remaining with the organization after earning his degree.

Zamanillo's love for museums and studying human history came together when he joined HistoryMiami Museum in 2000. Over the next 16 years, he worked his way up from curator of object collections to executive director and CEO, ultimately managing daily operations and spearheading renovations and expansion projects that doubled the museum's size. He also carved out time to earn a master's degree in museum studies from Leicester University, England, through a distance-learning program.

"It was really different going back to school in my 40s," Zamanillo said. "It was a great opportunity to apply what I had already learned [in my career]."

That combination of education and experience propelled Zamanillo and HistoryMiami to success. The museum, one of the largest private, regional history organizations in the southeastern U.S., presents exhibitions and programs reflecting the area's population and houses more than 40,000 objects and over two million images. Additionally, HistoryMiami is part of Smithsonian Affiliations, a network of 200-plus museums and cultural organizations that share exhibits, loan objects and support educational programming.

Zamanillo also serves as president of the Florida Association of Museums and is a board member of the American Alliance of Museums. He is a founding partner of Made By Us, an organization of museums and nonprofits aimed at engaging younger generations to write history from their own perspectives.

Before being tapped by the Smithsonian, Zamanillo had heard rumors for more than a decade about a forthcoming museum dedicated to the American Latino story. His interest grew when



Zamanillo on his first trip to Washington, D.C. Courtesy photo.

Congress approved creation of the National Museum of the American Latino in December 2020, but he managed his expectations.

"I didn't think I would be considered," Zamanillo said. "The more I thought about the unique chance to promote and amplify Latino stories and voices, the more I knew it would be a great opportunity."

Zamanillo made the search committee's short list last summer, landing the role after a lengthy interview process.

"Jorge's accomplishments at HistoryMiami Museum highlight his commitment to exploring the full sweep of the American story by bringing to life the complex and profound narratives of Latinos in the United States," said Secretary of the Smithsonian Lonnie G. Bunch III. "His transformational leadership will be invaluable as we build this necessary museum from the ground up."

While the National Museum of the American Latino is in its early stages — a site search is

underway — staff has already begun planning its first exhibition. The Molina Family Latino Gallery, the Smithsonian's initial gallery dedicated to U.S. Latino contributions, is scheduled to open at the National Museum of American History this year.

Since starting in May, Zamanillo has been realistic about the undertaking. It takes millions of dollars, a strong support system, and unwavering leadership at all levels to build a museum.

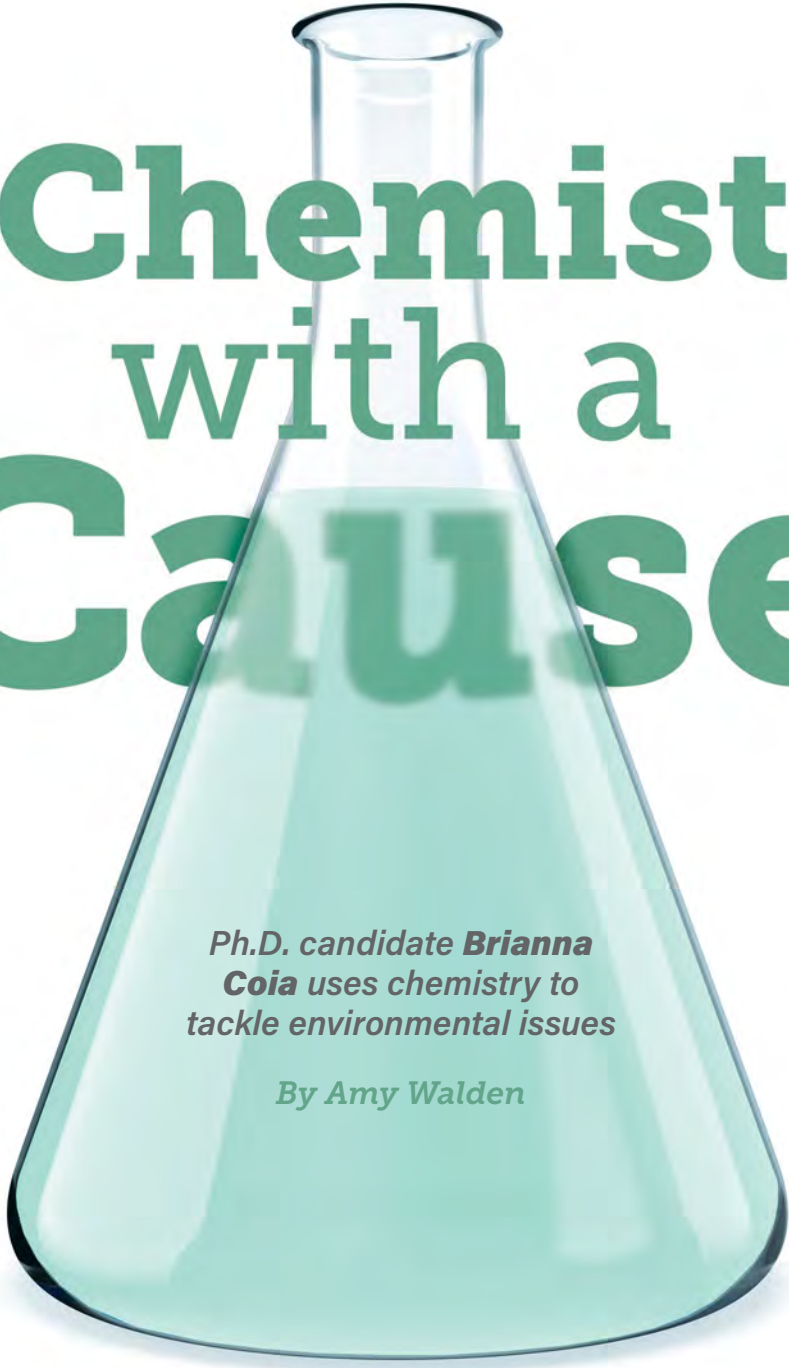
"It's a little daunting," Zamanillo said. "It's a big task, a 10-to-12-year project."

But there's no other job he would rather have.

"The Latino experience is American history, and I want to make sure our story will be preserved for future generations," Zamanillo said. "This museum will celebrate Latino accomplishments and resiliency through powerful stories that capture the adversity faced over centuries by Latinos in the U.S. and their perseverance to move forward and create a legacy." <

The Latino experience is American history, and I want to make sure our story will be preserved for future generations. This museum will celebrate Latino accomplishments and resiliency through powerful stories that capture the adversity faced over centuries by Latinos in the U.S. and their perseverance to move forward and create a legacy."

— Jorge Zamanillo



Chemist with a Cause

*Ph.D. candidate **Brianna Coia** uses chemistry to tackle environmental issues*

By Amy Walden

When many people think of helping the environment, big-picture images of trash cleanup or climate change policy activism spring to mind. But for Florida State University Ph.D. candidate Brianna Coia, making a big difference is all in the details.

The Rome, New York, native began her undergraduate journey at Keuka College with plans of becoming a high school teacher specializing in a subject she found intriguing — chemistry. While working toward her degree, Coia began an internship in the quality control department at Ferro Corporation, a chemical manufacturer that develops polishes, pigments and coatings for a variety of everyday products.

"I was fascinated by the intricate science behind the materials they were making and appreciated how amiable and helpful my coworkers were," Coia said. "Despite the internship only lasting a month, my experience there was incredible and changed my career path."

A few months later, Coia landed another internship in the company's research and development department and soon decided to apply to FSU's doctoral program in chemistry and biochemistry.

"I had an opportunity to tour campus, interact with graduate students and professors, and experience a bit of Tallahassee," Coia said. "I was inspired by the chemistry department's dedication to supportive and collaborative research to combat complex issues in science. I knew instantly that I wanted to be part of this team."

Associate professor of chemistry Justin Kennemur was just as intrigued by Coia's work ethic when he learned the remarkable story behind her undergraduate degree.

"There was no official undergraduate chemistry major at Keuka College. When Coia discovered her passion for chemistry, she self-developed one!" Kennemur said. "I've never heard of a student liking chemistry so much that they developed their own major for it. That says a lot about Coia's ambition."

Pine Sap Plastic

Coia quickly assumed an instrumental role in research within the Kennemur Group, helping to develop an entirely new area of research focus surrounding computational techniques to aid in predicting experimental outcomes. This facilitated

the group's discovery of a new pine sap-based plastic that has the potential to be a gamechanger for developing sustainable materials.

The study analyzed alpha-pinene, the most abundant molecule produced from pine sap, which currently has limited uses due to how notoriously difficult it is to turn into plastic. Coia's labmate, FSU doctoral student Mark Yarolimek, first synthetically modified the alpha-pinene to make the compound known as delta-pinene. The group then performed a range of "polym-



Brianna Coia. Courtesy photo.

erizations" — chemical reactions to transform small liquid molecules into solid macromolecules, or molecules containing a very large number of atoms — to test how effective this molecule was at becoming a plastic.

Coia simultaneously analyzed the delta-pinene to understand if it possessed the proper thermodynamic properties to undergo polymerization. With resources from the FSU Research Computing Center, Coia performed density functional theory calculations, reaching computational results that paralleled the group's experimental findings. The team then worked with FSU's Office of Commercialization to file a patent for the material they discovered.

"This discovery marked the debut of Coia's efforts to begin utilizing computations to help elucidate experimental behavior," Kennemur said. "Many reactions we do involve molecular rings and the strain within those rings often plays a large part in their reactivity. Coia was able to show that the delta-pinene had sufficient strain to undergo polymerization to the material we discovered."

Reduce, Reuse, Recycle

In her latest research, Coia is developing a computational approach to assess a monomer's viability for chemical recycling. This spring, she was awarded the American Chemical Society Division of Polymer Chemistry Graduate Student Travel Award to present at the ACS Fall 2022 meeting in Chicago. As with her pine sap research, this new project underscores an important, overarching theme in Coia's work — sustainability.

"This thrust of my research focuses on improving methods to screen new materials for their potential to be recycled," she said. "The ability to identify not only if starting materials can be recycled, but also the ideal reaction conditions to achieve this feat, can substantially decrease the time, cost, effort, and waste produced in the pursuit of new and recyclable materials," Coia said.

The first manuscript related to these investigations was published in May in the *Journal of Polymer Science*.

In April, Coia was also selected to receive the university's Cheryl and Joel Rosenfield Endowment Award to support her research. As she closes in on graduation in 2023, Coia is looking forward to carving out a career that allows her to use chemistry to help make the world a better place.

"I've always been passionate about helping the environment, and I've enjoyed all the different disciplines of chemistry," Coia said. "Polymer chemistry provided an opportunity to combine these interests using an interdisciplinary approach to address issues regarding the current plastic crisis." <

Tom Morgan contributed to this story.



Luke Van Popering. Photo by Amy Walden.

Data Driven

***Luke Van Popering earns the first master's degree from
Florida State's new interdisciplinary data science program***

By Amy Walden

When asked how it feels to be the first graduate of the Interdisciplinary Data Science Master's Degree Program in Florida State University's history, Luke Van Popering shrugged and chuckled.

"Presumably how it feels being the second graduate or third graduate," Van Popering said, swiftly avoiding any opportunity to brag about the accomplishment.

In Spring 2022, Van Popering became the first to earn his IDS master's degree, a feat considering the program officially launched in Fall 2021. The South Florida native earned his undergraduate degree from FSU's Department of Scientific Computing in 2021 and decided to begin graduate school after learning about the new IDS program during conversations with some of the program's founding faculty members.

"The IDS program was conceived by Dean Sam Huckaba three years ago and came to fruition while we were still in lockdown during the COVID pandemic," said Gordon Erlebacher, professor and chair of the Department of Scientific Computing.

Leveraging the power of the university's heritage strengths in the STEM disciplines, the IDS program offers coursework and training at the graduate level in majors including computational science, computer science, mathematics, and statistics.

Erlebacher, the first to serve as director of the IDS program, mentored Van Popering throughout his undergraduate and graduate journey.

"There is no shortcut to expertise. It takes countless hours of practice, dedication, and hard work to achieve mastery," Erlebacher said. "Luke's work ethic is unrivaled. For example, we may discuss new algorithmic ideas in a research meeting, and Luke will follow up with an email outlining recent papers relevant to the proposed approach and often attach an original sample implementation within a few days. His dedication led to his graduating a semester

early while satisfying all the requirements."

Van Popering's accomplishment is even more impressive considering the unexpected road he traveled. Just a few weeks into his freshman year of high school, after what he describes as a "confluence of terrible things," Van Popering decided to chart his own path and give homeschooling a try.

"I ended up basically homeschooling myself for four years, and I always make a point to phrase it as 'homeschooling myself' because my parents were both quite busy," Van Popering joked. "But I chose what I wanted to do. For most folks I think that would probably be a terrible thing, but I'm someone who enjoys learning

learning with many applications that has gained much prominence in the past five years. Luke shines scholastically. He works relentlessly, learns quickly, has excellent math skills, and regularly proposes clever and quality ideas, all characteristics of prominent researchers," Erlebacher said.

Van Popering's skills even exceeded Erlebacher's own in several areas, he said, a result of his student's passion and dedicated focus on mastering all facets of advanced machine learning. That drive helped Van Popering land an internship at NewSci Labs, a Tallahassee-based artificial intelligence software development company directed by FSU scientific computing alumnus Nathan Crock. After graduation, Van

Luke shines scholastically. He works relentlessly, learns quickly, has excellent math skills, and regularly proposes clever and quality ideas, all characteristics of prominent researchers."

— Gordon Erlebacher, Professor and Chair of the Department of Scientific Computing

new things and can schedule themselves well enough, even as a 14-year-old high school freshman. It all worked out well."

So well, in fact, that Van Popering was accepted to FSU in 2017 and received the Benacquist Scholarship for National Merit Scholars. He initially began his college career with a focus on physics, then developed a fascination with machine learning after taking an introductory course in scientific computing. He quickly made an impression on his professors.

"Luke is one of a kind," Erlebacher said. "As an undergraduate student, he developed expertise in graph neural networks, a branch of machine

learning with many applications that has gained much prominence in the past five years. Luke shines scholastically. He works relentlessly, learns quickly, has excellent math skills, and regularly proposes clever and quality ideas, all characteristics of prominent researchers," Erlebacher said.

As the IDS program celebrates its inaugural graduate, Erlebacher and fellow program faculty members are eager to watch the FSU data science alumni family expand in the coming years.

"Witnessing the graduation of our first student after one year is very exciting and portends a great future," Erlebacher said. "There are more than 500 students who applied to the program for Fall 2022." <



Change Agent

Abril Hunter uses her research background to translate environmental science into public policy

By Kendall Cooper

When **Abril Hunter** was named a Truman Scholar this spring, it was the latest in a lengthy list of accolades the rising senior has earned since first arriving at Florida State University in 2019.

The scholarship recognizes those who carry the legacy of President Harry S. Truman's dedication to public service and is the nation's most prestigious fellowship for undergraduates interested in serving at local, state or federal levels. Hunter, an environmental science and public policy major, stands among 58 Truman Scholars chosen from a pool of 705 candidates nominated by 275 colleges and universities across the country who were selected based on academic success, leadership accomplishments, and their potential for becoming change agents postgraduation.

"I am in awe to say that I am a 2022 Truman scholar," said Hunter, who, in addition to her major through the Department of Earth, Ocean and Atmospheric Science, is also pursuing minors in urban and regional planning and social welfare.

Hunter's desire to serve crystalized while she was in high school and heard about the lead-contaminated water in Flint, Michigan. Appalled to learn that the public-health crisis was happening just an eight-hour drive from her home in Belleville, Illinois, Hunter wanted to make a change.

"People are literally dying because of environmental injustices," Hunter said. "Environmental science and helping people shouldn't be politicized topics, or even up for debate."

For her high school science fair, Hunter researched how lead pollutes water systems through biosorption and engineered bio-sand filters as a pollution remediation method. She presented this research at the International Science and Engineering Fair in Pittsburgh, Pennsylvania, and the NAACP's Afro-Academic, Cultural, Technological and Scientific Olympics in Detroit, Michigan.

"I learned so much about the community impacted by the Flint water crisis through presenting my research in the same area," Hunter said. "That passion for Flint shaped me, and it characterized my growth as a leader and a scientist."

Hunter was drawn to FSU for its unique major in environmental science and policy, as well as



Left: Abril Hunter. Above (from left): Presidential Scholar Jaden Jones, Craig Filar and Hunter. Courtesy photo.

the university's capital city location, allowing her a front-row seat to the application of scientific research to public policy decisions. Additionally, she was one of 30 prospective first-year students to be selected in 2019 as a Presidential Scholar, the university's preeminent undergraduate scholarship for four years of study.

Associate dean of the Division of Undergraduate Studies and director of FSU's Office of National Fellowships Craig Filar first met Hunter when she applied for, and was accepted into, the Presidential Scholar scholarship, for which he is the program director.

"Abril's passion for battling the systemic issues around racial inequity and the environment are rooted in her personal experiences, and she has honed her skills through years of meticulous, dedicated, and innovative service and research," Filar said. "She will champion these causes throughout her career."

Hunter's more recent research projects explore the intersections of environmental science and public action. In 2020, she analyzed recycling messaging's effectiveness across Florida through FSU's Undergraduate Research Opportunity Program. She also investigated environ-

mental science communication as an undergraduate research fellow at Washington University's Tyson Research Center, in St. Louis, Missouri.

During her sophomore year, Hunter earned the Ernest F. Hollings Undergraduate Scholarship, distributed by the National Oceanic and Atmospheric Administration's Office of Education. The scholarship includes two years of financial aid and a full-time, paid internship at a NOAA facility during the summer. She is currently a NOAA intern with the Virginia Institute of Marine Science, part of the College of William and Mary, and is studying signage at public-access sites within the area's watershed.

"I've been part of research that reveals jarring realities like the disproportionate rates at which minorities are affected by environmental pollutants and toxins," Hunter said. "However, that messaging isn't always clearly communicated to legislators and everyday citizens."

Beyond her research, Hunter is currently serving her first term as the 2021-22 student senate president. According to Filar, Hunter's leadership as student senate president has been crucial to the effective running of an organization that requires clarity, assurance, understanding and intelligence.

"Abril is on the forefront of creating solutions at the intersection of two of the most pressing issues we are facing, climate change and racial inequity," Filar said. "She approaches her work with intelligence, passion, and humility."

Hunter plans to attend graduate school for urban and regional planning, an issue she finds central to environmental science policy and community work, and her ultimate goal is career in environmental law and administration.

"I am forever grateful to FSU for the love it's given me for leadership and public service," Hunter said. <

Kendall Cooper is pursuing a double major in media/communication studies and English with a concentration in editing, writing and media. She is set to graduate in May 2023.

Two of a Kind

Appearance isn't the only thing identical twins Ethan and Noah DuBroff have in common.

By Emma Cryer

Because the DuBroff twins, Ethan and Noah, say that being twins doesn't make them the same person, they find it humorous their argument is undermined by the fact that they happen to like all the same things.

"What separates me from Noah?"

My favorite color is blue! His is red!" Ethan cracked.

"Joking aside, we enjoy studying similar subjects but find different conclusions. I enjoy Bronze Age Middle Eastern history, while he enjoys classical Greek and Roman history," Noah said.



The pair, from Palm Bay, Florida, didn't intentionally choose the same university or major, but it's no surprise to either junior that both ended up pursuing dual degrees in history and classical archaeology at Florida State University.

"I was interested in history and classical archaeology," Noah said. "Guess what Ethan was interested in? History and classical archaeology!"

Both brothers are lifelong history buffs. Ethan enjoyed schoolwork and the Percy Jackson book series, based on Greek mythology. Noah loved playing the video game "Age of Mythology" with their dad, and its' source-backed history on characters, monsters and objects.

Many of their childhood experiences included trips to historical sites.

"One great memory I have with Noah was our colonial-era history trip in third grade. We started in Williamsburg, Virginia, and hit sites all the way into New England, including Valley Forge, Philadelphia, Boston, Ticonderoga, Saratoga and Salem," Ethan said. "We will never forget that."

"One memory I enjoy with Ethan was visiting the British museum for the first time," Noah said. "It was like stepping into a holy land."

These experiences set the stage for their interests in studying history and classical archaeology. Their shared interests and majors have tied into extracurricular activities, too.

Kurt Piehler, associate professor of history and director of FSU's Institute on World War II and the Human Experience, recruited the brothers to assist in curating "Rendezvous with Destiny: Florida and WWII," an exhibit at the Florida Historic Capitol Museum. Piehler drafted Ethan and Noah because of his previous experience working with them.

"Ethan and Noah were self-starters. I was impressed with their intellectual curiosity. The exhibit was organized in a record five months, and featured objects and images from institutions



Left: Noah and Ethan DuBroff. Above: The DuBroffs learning about history as children. Courtesy photos.

as close as the Florida State Archives and as far as the Imperial War Museum in London," Piehler said. "Working with me and the museum staff, they took part in many aspects of curation including research, identifying artifacts, installation and publicity."

"Rendezvous with Destiny," which ran from December 2021 to March 2022, focused on the pre-war period and the beginning of World War II from the perspective of civilian and enlisted personnel Floridians. Working on the exhibit allowed them to network in the museum industry, acquire research experience, and collaborate with other museums.

However, the brothers do not share everything.

"We're both pursuing honors in the major," Ethan said. "Thankfully, on different topics."

Noah is exploring the 1960s Congo Crisis, a civil war with approximately 100,000 casualties, including the Congo's first prime minister, Patrice Lumumba, and United Nations Secretary-General Dag Hammarskjöld, who died mediating the conflict. His thesis focuses on how U.S. reaction may have contributed to or deescalated the situation.

Ethan's thesis analyzes how American perceptions of World War I shaped the country's entry into the conflict and how perceptions became progressively more anti-German and pro-ally.

Jessica Clark, associate professor of classics and the department's director of undergraduate

studies, has worked with the twins in the past and will contribute to their thesis experiences.

"I'm looking forward to being part of Ethan's and Noah's independent development as historians on their separate theses committees," Clark said. "Ethan and Noah have very different intellectual styles, particularly in written work, where their methodologies take them in different directions."

Following their graduations in Spring 2023, Ethan plans to earn a master's degree and Noah is considering a master's and doctorate. Both anticipate deciding focal areas in the coming year as they seek out new experiences. This summer, they will get archaeological field experience at Cetamura del Chianti in Italy.

"So far, we've only known books and curation of artifacts, not excavating artifacts firsthand," Ethan said.

"This is an extension of our study, but a truly new experience," Noah said.

Regardless of their similarities and differences, the twins appreciate one another's friendship.

"I like that he's willing to push me," Ethan said.

"I appreciate that we're patient with each other," Noah said. "When one of us struggles, the other is always willing to lend a hand or give that last push we need to accomplish an individual project." <

Emma Cryer graduated with a degree in media/communication studies in May 2022.

A photograph of Richard McCullough, a middle-aged man with grey hair, wearing a maroon academic robe with a blue collar. He is looking slightly to the right. A microphone is visible in the lower right foreground. The background is dark and out of focus.

Presidential Perspective

Chemist, entrepreneur and Florida State President
Richard McCullough shares his thoughts on science and
humanities collaboration and the value of the research enterprise

By Heather Athey

As Florida State University's 16th president, Richard McCullough brings to the role more than three decades of experience in academic research and leadership that have helped him hit the ground running since his arrival last August. McCullough's broad and ambitious vision for Florida State capitalizes on the university's legacy of research excellence and student success and challenges its community to strive for more: Expand the research enterprise, drive investment, foster diversity, encourage collaboration, and deliver added value.

"Florida State has indeed earned the right to be called a great university," McCullough said during his inauguration address, while outlining a vision for FSU that includes membership in the Association of American Universities and a spot inside the Top 10 ranking of the nation's public universities. "Now our challenge — and our responsibility — is to become even greater."

From his roles as vice provost of research and professor of materials science and engineering at Harvard University, to his

decades in the chemistry department at Carnegie Mellon University, McCullough brings an interdisciplinary and academic focus to his presidency that aligns seamlessly with the College of Arts and Sciences' slate of offerings and spirit of collaboration. And his entrepreneurship — McCullough founded two companies and holds multiple patents — illustrates the economic value and transformative impact research institutions can generate for the communities in which they operate.

"President McCullough has accomplished much, and we are thrilled that he is now leading FSU," said Dean Sam Huckaba. "His enthusiasm for this institution and its potential to become even greater is infectious. All across campus, faculty members are responding to his calls for innovation and collaborative growth. On behalf of the College of Arts and Sciences, I am exceptionally pleased to welcome the president as a tenured professor in the Department of Chemistry and Biochemistry."

Spectrum Magazine talked with the president to learn more about his vision for FSU and what that means for the College of Arts and Sciences.

Spectrum Magazine: When you became president, you also joined FSU's Department of

Chemistry and Biochemistry as a tenured professor. What can you tell us about your reasons for pursuing an FSU professorship, and how has your career as an academic shaped your leadership perspective?

RM: It was very important for me to pursue a tenured professorship because I am an academic, and I've been a professor at every university I've been associated with. At my core, I'm a faculty member, I just happen to be an academic administrator or the president, but I think about things as a faculty member because it's who I am. I wanted to be held to the same standard we expect for our tenured faculty members, so I asked to go through the full process: I was very happy to get tenure.

I'm a professor-centric academic administrator, and universities are great because of their faculty. The faculty set the university's reputation and that reputation leads to peer assessment. The university rankings in turn attract undergraduate and graduate students based on the quality of the programs, which are based on the quality of the faculty. Investment in faculty and shared governance with faculty and getting feedback from faculty are the heart and soul of my administration.



President Richard McCullough congratulates a student during Spring 2022 commencement. Left: McCullough speaks at Spring 2022 commencement. Photos by FSU Photography Services.



McCullough meets with orientation leaders on the first day of the Fall 2021 semester.
Photo by FSU Photography Services.

SM: Among the College of Arts and Sciences' competitive advantages are interdisciplinary collaborations that happen as a result of collocating the natural sciences and humanities. What collaborations have you seen among the sciences and humanities, and what do you envision on the horizon for such collaborations at FSU?

RM: FSU is a great place to consider connections between the hard sciences and humanities. Books and art and how we use those

amazing resources as scientific research tools are incredibly significant. The history of science when it comes to climate change, for example, is one area where we see the impact of science on humanity.

It's often been said that the written word has a much stronger impact than the science itself because people connect with the human experience. If you look back at John Steinbeck's "Grapes of Wrath" and the Dustbowl or the

Chicago meatpacking industry in Upton Sinclair's "The Jungle," those books had a much more profound effect than policy or science.

People don't often stop and think about the intersection between humanities and the sciences, but the power of the humanities provides the power to change the world.

SM: You've spoken often about commercialization activities and providing support to students and faculty members as they transform their research into startup companies. How do you see this fitting into FSU's larger research enterprise, and how will providing such support contribute economic value?

RM: One of the things I'd like to do at Florida State is provide guidance for people interested in starting companies or translating or commercializing their technology that helps them understand not only how to do that but also encourages them and provides a clear path. FSU does not presently have a policy on starting a company, so we're working on creating one. Once we have an approved policy, then we'll provide opportunities for people to learn how to start a company.

I founded a couple of companies and it can be hard to figure it out alone, so it's important to provide pathways for people to learn how to do it right. Starting a company is fascinating; I learned some of the most interesting problems that needed to be solved in science through that work.

One of the many wonderful aspects of Florida State is that we have alumni who truly love the university. It's not something we have to convince them of, so it is incumbent upon us to continue to demonstrate how we are advancing our programs and how their philanthropic dollars can be transformative."

— Richard McCullough, Florida State University President

My first company, we were trying to create materials for the televisions of the future, which are actually the OLED televisions of today [where the picture is formed by a thin, bendable layer of organic light-emitting diodes]. There's a lot of science that goes in understanding how to increase the lifespan of the lights and the televisions, but you're also creating jobs.

Companies create a lot of jobs — even small startups create five or six jobs. We created 80 jobs in Pittsburgh through my first company, and my other company employed about a dozen people. Startups create jobs that help keep talent in Tallahassee and in Florida, and they contribute economic value — money comes into those companies and gets spent locally.

When you do it the right way, startups can help transform economies and the city itself. Once you start having a lot of companies form, people start paying attention. Then other companies start considering sending a few people to Tallahassee to set up an office. Then, maybe, it's establishing a bigger office. All of a sudden, you're talking about adding 1,000 new, high-paying jobs in the region. It's not something that happens overnight, but it's something I'm very excited about.

For a very long time, I've been an adviser to Washington University in St. Louis and Oxford and Princeton and I've been on the [American Association of Universities] Committee on Tech Transfer and Commercialization, so this is an area I know a lot about and look forward to seeing what we can do here.

SM: Among your stated goals is to increase research expenditures at FSU, particularly National Institutes of Health funding. What can you tell us about your plans in this area, and how will the forthcoming partnership with Tallahassee Memorial Hospital help FSU advance this goal?

RM: The Florida Legislature has been incredibly supportive of FSU. Governor DeSantis signed the budget and we received \$125 million to build a new life sciences research building that may be near TMH and could bring in as much

as \$45-55 million in life sciences research into the area. Ideally the space will be populated with physician scientists, and it will also help attract new physicians to Tallahassee and take our already good health care and make it even better — that is our ultimate goal.

The digital health data science initiative we're trying to get off the ground will also hopefully attract corporate partners, and we have amazing things going on in nursing and with mental health in psychology and the College of Medicine. We're bringing seven-and-eight-figure research grants into FSU, which means we're competitive with pretty much all the researchers in the country for funding.

Research is a real strength for FSU, so we'd like to continue to build on that and branch out with increasing expenditures across our disciplines including chemistry, biology, physics, statistics and more.

SM: College of Arts and Sciences alumni account for nearly a third of all living FSU

graduates and range in age from 21 to 101. What would you most like them to know about the value FSU brings to its alumni at all stages of their lives, and why is it important for them to continue to invest in FSU?

RM: One of the many wonderful aspects of Florida State is that we have alumni who truly love the university. It's not something we have to convince them of, so it is incumbent upon us to continue to demonstrate how we are advancing our programs and how their philanthropic dollars can be transformative.

We must engage alumni in interesting ways and show how that involvement can be mutually beneficial. We have great direct support organizations and I am seeing how we can start to integrate more with our colleges, develop new initiatives and build on the programs we already have in place. <

For the latest on presidential news and initiatives, visit president.fsu.edu and follow @PresMcCullough on Twitter.



McCullough accepts a gift from the Seminole Tribe of Florida during his February 2022 investiture ceremony. Photo by FSU Photography Services.



Magnificent Mind

*FSU neuroscientist **Wen Li** studies processes behind human emotion, cognition and psychopathology*

By Amy Walden

Wen Li. Photo by Amy Walden.

Isn't it just so beautiful?" Florida State University associate professor of neuroscience Wen Li asks, gazing at the image on her computer screen, smiling from ear to ear.

Li looks at MRI scans of a human brain the way many people look at a colorful sunset, and her passion for neuroscience and clinical psychology is undeniably infectious.

Growing up in Wuxi, China, a town with a deep intellectual tradition located about an hour outside of Shanghai, Li became interested in studying psychology after seeing the mental and cognitive suffering endured by patients that went unnoticed by the doctors treating them for physical afflictions.

"It was the mental toll that was not acknowledged at all at the time in China that upset and pained me. It prompted me to study psychology to raise awareness and understanding of mental illnesses," Li said.

Li viewed the United States as a global leader in various areas of science, culture and mental health, and decided to move abroad in 1999 after being accepted to Northwestern University, where she completed her doctorate.

"I was lucky enough to enter a great university with great resources to help international students. The cultural shock and cultural and linguistic barriers were still very real and hampering. It took many years to largely overcome them," Li said.

Despite the hurdles, Li dove into research and landed a job at the University of Wisconsin-Madison in 2008. In 2015, Li came to Florida State, attracted by FSU's Strategic Hiring Initiative in Brain Health and Disease, the opening of the functional MRI facility, and university's overall strength in clinical psychology.

"Dr. Li was one the first hires we made when the FSU MRI Facility became a reality," said Frank Johnson, chair of the Department of Psychology. "Through her work, she continues to demonstrate the ground-breaking potential that the fMRI brings to the FSU campus."

High-impact discoveries do not come easily. To answer important questions, which is usually hard to do, one needs to have grit in order to overcome obstacles along the way."

— *Wen Li, Associate Professor of Neuroscience*

Li now helms the Cognitive Affective Neuroscience Lab at FSU, which conducts a wide range of research in clinical psychology and neuroscience. Studies from her lab have been published in prestigious journals including *Science*, *Neuron*, *Brain*, *Proceedings of the National Academy of Sciences*, *Current Biology*, and the *Journal of Neuroscience*, and Li has attracted over \$2 million in funding from the National Institutes of Health as a principal investigator.

"Wen is fantastic for her breadth and depth of knowledge and ability to communicate it," said Joshua Brown, a third-year neuroscience graduate student in the CAN Lab. "She is truly passionate about science and will discuss at length the insights she has uncovered herself and the knowledge she has gained from her collaborations with others inside and outside of her field in cognitive neuroscience."

Brown, whose research focuses on the neural underpinnings of attention and fear memory, said the facilities and clinical focus at FSU have afforded him opportunities to innovate, such as recording electroencephalogram and fMRI data simultaneously. This allows for new analyses of dynamic brain activity that are not possible with traditional static measures.

"Wen's training in clinical psychology, together with her diverse methodologies involving fMRI, transcranial magnetic stimulation, and EEG, have been instrumental in developing a new area of research excellence in human cognitive neuroscience over the past decade," said Lisa Eckel, director of FSU's Interdisciplinary Program in Neuroscience. "Wen led this effort, allowing us to expand our graduate training program by attracting top students who are interested in using human-imaging techniques

to conduct cutting-edge basic and translational research in cognitive neuroscience."

Li's latest work analyzes how neural electrical oscillations at certain frequencies may help to downregulate the hyperactive brain and restless mind, especially for those dealing with stress and anxiety. She is also researching how transcranial neural stimulation, achieved by passing a weak electrical current through the skull, can be used to enhance such oscillations so as to mitigate pathologies and normalize mental and behavioral activities in patients.

"By integrating research on different levels spanning basic principles by which the brain operates, different large-scale networks, and psychological processes and behavior, we are translating basic science in the lab to treatment at the clinic," Li said. "By isolating specific neural mechanisms and inventing non-invasive techniques to target these mechanisms, we are developing new treatments for these debilitating and hard-to-treat conditions."

Leading research that could provide hope for how conditions such as Alzheimer's disease, post-traumatic stress disorder, schizophrenia, and depression are perceived and treated is only half of what Li hopes to accomplish through her work. The other half is sharing her fascination with psychology and cognitive neuroscience with her students and inspiring them to harness their own power through a combination of passion and perseverance, what Li calls, "grit."

"High-impact discoveries do not come easily," Li said. "To answer important questions, which is usually hard to do, one needs to have grit in order to overcome obstacles along the way." <



Role Models

Junior Arts and Sciences faculty earn prestigious National Science Foundation awards to advance leadership, teaching in their fields

By McKenzie Harris

Pursuing a career in academia or research can be an overwhelming prospect for recent doctoral graduates, and the prospect of a career combining both can be downright daunting. However, some of Florida State University's junior faculty are getting national attention and support to launch groundbreaking research careers.

Five faculty members from the FSU College of Arts and Sciences departments of Earth, Ocean and Atmospheric Science; Mathematics; Computer Science; and Physics have earned Faculty Early Career Development Program Awards, or CAREER Awards, from the National Science Foundation this year. The CAREER Awards Program offers NSF's most significant awards in support of early-career faculty who have the potential to serve as role models in research and education and to lead groundbreaking advances in their fields.

"This award is one of the most prestigious grants an early-career researcher can receive, and the true value of the award is in its support of faculty's research as well as their education programs for five years, providing long-term stability in funding," said Beth Hodges, director of the FSU Office of Research Development.

"Watching so many of our faculty earn CAREER Awards not only highlights the caliber of researchers teaching at Florida State, but it emphasizes how incredible our junior faculty are and gives them a great foundation to integrate their research into their teaching and educational goals."



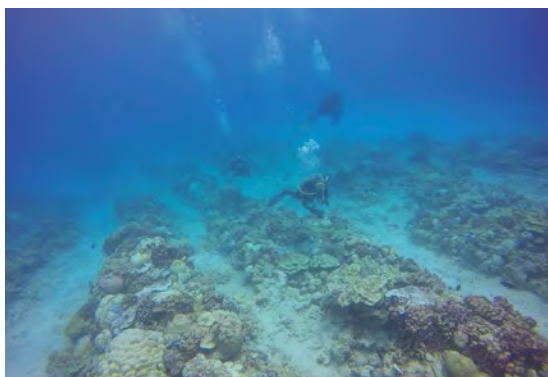
Recording the Past

Assistant professor of oceanography and meteorology Alyssa Atwood, who researches how Earth's tropical climate has varied in the past and how paleoclimate records can help inform future climate change predictions, said one of the most exciting aspects of the award is the ability to mesh her research and teaching goals.

"The project funded by this award aims to fill a key data gap in historical climate observations by developing new coral-based temperature records of the past from the equatorial Pacific Ocean," Atwood said. "I will invoke a new sampling approach that targets smaller, more widely available coral archives than have traditionally been used, and I will employ new geochemical techniques to optimize the temperature signals in these records. The reconstructions will provide unprecedented detail on how ocean temperatures and extreme events have evolved in this region over the last 3,000 years."

At a local level, Atwood's project will expose FSU graduate students to professional development opportunities to increase their preparedness in entering the scientific work force. On a global scale, the project will address community needs at international field sites through engaging in synergistic research and knowledge co-production with local scientists, community leaders, stakeholders and schoolteachers.

Above: Alyssa Atwood. Top right and below right: Atwood working in the field. Courtesy photos.



Making History

Assistant professor of mathematics Feng Bao assists scientists and engineers by using numerical solutions for differential equations, uncertainty quantification, computational math, and mathematical foundations for machine learning to design algorithms. Currently, Bao is developing scalable, efficient algorithms specifically for supercomputers working with large amounts of neutron data and another algorithm for computing quantum material. He is the first FSU mathematics faculty member to ever earn a CAREER Award.

"To earn this award, especially at my dream university, is an honor, and I'm happy to bring this honor to FSU's math department. I hope to serve as a bridge between abstract math concepts and the science and engineering used to solve real-world problems," Bao said. "These connections can show how math, which can be very general and difficult to understand, affects our everyday lives. Through this grant's assistance in my teaching and research, I hope to give back to the department that has supported me so much."



To earn this award, especially at my dream university, is an honor... I hope to serve as a bridge between abstract math concepts and the science and engineering used to solve real-world problems."

— Feng Bao, Assistant Professor of Mathematics



Advancing AI

Assistant professor of computer science Shayok Chakraborty's primary research goal is developing sophisticated artificial intelligence systems that perform well with limited human supervision. While modern machine learning algorithms have depicted commendable performance, they require a large amount of hand-annotated training data, gathering which is an expensive process in terms of time, labor and human expertise. Active learning algorithms alleviate this challenge by automatically identifying salient and informative samples from large amounts of data, which need to be labeled manually.

"The CAREER Award will provide me with the support to develop the next generation of active learning algorithms, which are designed to operate under real-world constraints such as imperfect or noisy data annotation," Chakraborty said. "The knowledge and insights gained from this project will be used to drive the algorithm design in my other collaborative research projects where the primary goal is to enrich the quality of lives of individuals with disabilities. This award will also help me educate a wide range of trainees, from high schoolers to older adults, on recent advances and applications of AI."

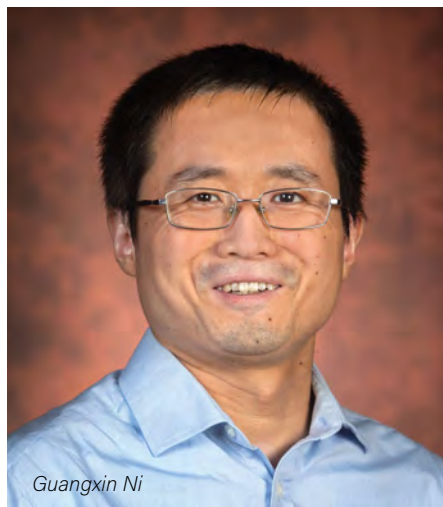
Futurecasting

Assistant professor of meteorology Allison Wing will use her NSF CAREER Award to support two graduate students in her investigation of the role of tropical cloud systems in the water cycle and climate. Specifically, she will study how the clustering of convection influences heavy rainfall events and how changes in the properties of clouds and the way they clump together affect the planet's future warming.

"I'm excited to be able to significantly expand the work my research group has done on the organization of tropical clouds and convection in new directions and develop new model simulations to address these questions about climate," Wing said. "I'm also looking forward to developing a suite of educational activities on tropical thunderstorm clouds, weather, and climate to use in outreach visits to K-12 schools in addition to training university students and other scientists to do this same kind of outreach."



Allison Wing



Guangxin Ni

Quantum Technology

Assistant professor of physics Guangxin Ni studies unique and exotic electronic and optical phenomena arising in solids that are only one or, at most, a few layers of atoms thick, so-called two-dimensional solids. These 2D crystals contain rich physical properties due to their reduced dimensionality and quantum confinement. Specifically, Ni uses lasers to generate intense beams of light at different wavelengths that interact with the electrons in the solids at the nanometer length scales. These generated exotic interactions in the solid materials can be probed by conducting experiments using advanced scanning nano-optical microscopy. Applications of this research lie in areas such as light-matter interactions, and novel optical and electronic properties of new quantum materials.

"This award opens a new chapter for my future work. It will allow me to pursue cutting-edge research in advanced scanning nano-optics characterizations of quantum materials and interrogate their peculiar light-matter hybrid states down to the nanoscale," Ni said. "My research group is currently working on harnessing the nano-light excitations to probe and control the intrinsic electronic and optical properties of low-dimensional quantum systems, and this award provides much-appreciated resources as my research program continues to gain momentum."

Living Legacy

Twenty-one Arts and Sciences faculty members have earned NSF CAREER Awards since 2010, and this year's decorated cohort is the largest. Faculty applying for CAREER Awards are supported by programs sponsored by the Office of Research Development, part of FSU's Office of Research.

"The NSF CAREER Award competition is fierce and the applicant pool is deep. In addition to providing lucrative funding to recipients, being chosen for a CAREER Award is a mark of distinction," said Sam Huckaba, dean of the College of Arts and Sciences. "These types of recognitions of our faculty underscore the college's unwavering commitment to high quality both in research and in the classroom." <

Good Company



Florida State University's academic excellence translates to corporate success

*By Tom Morgan,
Kendall Cooper
and McKenzie Harris*

A university education is commonly seen as a gateway for students to access careers in the corporate world. But the country's top universities also serve as centers for early-stage research and development and hubs for innovation.

Florida State University has a long-standing record of success as a corporate partner — whether through training students with relevant skills to join the work force or start their own businesses, collaborating with industry to conduct research, or creating groundbreaking innovations utilizing state-of-the-art campus facilities.

And much of that FSU alumni and faculty success in business is rooted in the disciplines and work done in the College of Arts and Sciences.

Savvy Operators

Florida State University Department of Scientific Computing alumni Eric Sharkey and Nathan Crock developed a speech-to-speech artificial intelligence program used to help train phone operators who dispatch emergency services.

Through a partnership with Priority Dispatch, the call-simulator software produced by NewSci — an artificial intelligence software

development company based in Tallahassee — has been adopted by 911 call centers across the nation and around the globe.

The AI tool accepts speech input from the user and responds with AI-generated synthesized speech output. In addition to lowering the cost of training, dispatch trainees can focus on practicing challenging protocols such as helping children callers and training for low-frequency, high-acuity situations like plane crashes. They can also repeat simulations as many times as needed and access training from anywhere with an internet connection rather than depending on the availability of trainers at a call center.

Since its founding in 2014, NewSci has hired several alumni from FSU's Department of Computer Science and FSU's Department of Scientific Computing, and also provides internship opportunities.

"The core curriculum in the Department of Scientific Computing trains students in the disciplines of mathematics, computing, and statistics, preparing them to model real-world phenomena, analyze a model's mathematical and statistical properties, and interactively explore their model via

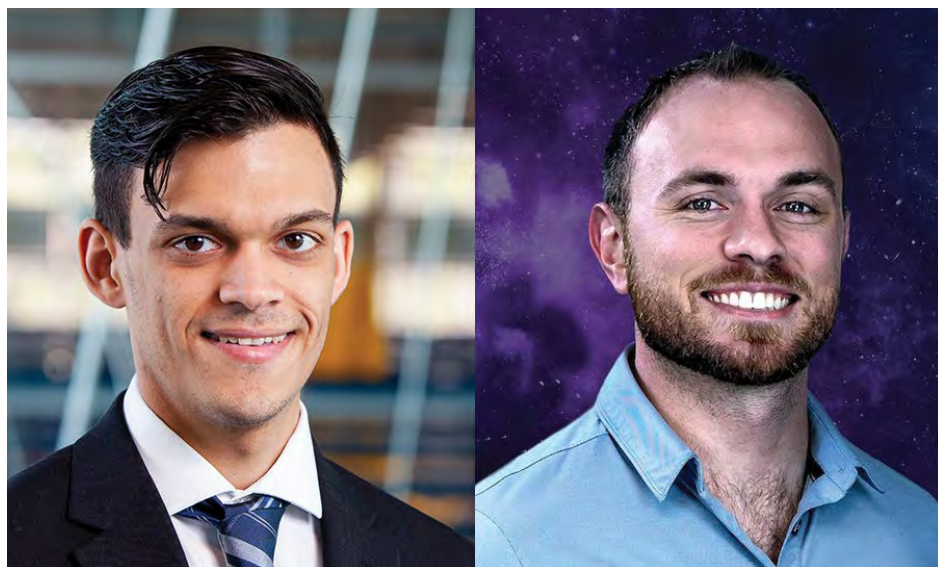
simulation on high-performance computers," Crock said. "This is the process we used to develop the call simulator."

Crock co-founded and directs NewSci Labs — NewSci's research facility that works closely with the company to apply AI to real-world challenges — and recruited Sharkey, who earned a bachelor's degree in computer engineering with a minor in mathematics and a master's degree in scientific computing, as the company's first undergraduate intern in 2018. Sharkey now leads the development of the call simulator software as a machine learning engineer.

Early Entrepreneur

As an undergrad majoring in biological science and minoring in chemistry, alumnus John Wilcox cofounded the diabetes research company Diatech Diabetes before his 2018 graduation.

Wilcox focused on insulin pumps, a common medical device used to help stabilize a patient's blood sugar that mimics a functioning pancreas and serves as a lower-maintenance alternative to frequent insulin injections. Unfortunately, these pumps often fail to work properly, which means patients may experience more sugar instability. As a person with Type 1 diabetes himself, Wilcox reached out to biomedical



Eric Sharkey and Nathan Crock. Courtesy photos.

I get exposure to what is happening in the industry and then use that knowledge to modify my classes in ways I would never otherwise be able to do. The dean and my chair allowing faculty to do this is huge — many universities and industries don't allow people to run their own companies or do outside work."

— Piyush Kumar, Professor of Computer Science



John Wilcox. Courtesy photo.

engineering students Luis Blanco, Nick Cooper, and John Clark Gray and shared his research idea, which the group quickly realized had major potential.

The team pitched its prototype developments to the Jim Moran College of Entrepreneurship's 2018 InNOEvation Challenge, but in order to accept the prize money from winning the competition's Most Innovative project award, they needed to actually create a company. And so, Diatech was born.

Today, Diatech Diabetes develops medical devices and products, including its SmartFusion system, which uses an algorithm to detect insulin delivery failure more

successfully and quickly than the standard insulin pump software.

"Anyone who's interested in pursuing their passion, whether that's enacting change or starting a business, should go for it if they're dedicated and can really put the time and energy into it," Wilcox said.

Prolific Innovator

It's not just alumni who find corporate success — FSU faculty do, too. Professor of computer science Piyush Kumar joined the university in 2004 and has lately focused his research and teaching on using artificial intelligence to find practical solutions to real-world problems.

Kumar and his graduate students are applying the discipline in a variety of ways: Recently, they have been looking at using AI to increase the resolution of medical imaging, building algorithms that simulate and model the stock market, and automatically identifying roads from satellite imagery for open-source mapping projects.

He also actively heads two Tallahassee-based companies involved in AI that have recruited extensively for FSU students and alumni. Several of those students and employees have since gone on to work at major technology companies in Silicon Valley.



Piyush Kumar. Courtesy photo.

As director of CompGeom Inc., Kumar consults on a variety of machine learning and data mining projects, especially for the U.S. defense and energy sectors. As director of Cognitive GeoInterpretation Inc., Kumar leads a software development company building a platform for "seismic interpretation," which uses massive datasets to model geology, conceivably useful for finding resources like water, gas and oil.

"I get exposure to what is happening in the industry and then use that knowledge to modify my classes in ways I would never otherwise be able to do," Kumar said. "The dean and my chair allowing faculty to do this is huge — many universities and industries don't allow people to run their own companies or do outside work." <

Property Protections

Florida State University's Office of Commercialization has primary responsibility for licensing faculty research to commercial entities and supports researchers from across the university.

"Our office takes the technologies and inventions developed through faculty research and packages them for industry, meaning providing intellectual property protections, such as patents and copyrights, that make technology of interest to industry because they can have some exclusivity of it," said Brent Edington, director of commercialization.

Only a fraction of discoveries end up being licensed and turned into products but, when it does happen, it can potentially return millions of dollars to the university, which, in turn, funds more research.

FSU is home to perhaps the most successful example of commercialization ever. Nearly 30 years ago, Robert Holton, the Matthew Suffness Professor of Chemistry, created a synthetic version of a life-saving breast cancer drug, Taxol. At the time, Taxol could only be made from the slow-growing Pacific Yew, which made it difficult to obtain large quantities and restricted quantities available to treat patients.

The university and Holton patented the work and partnered with Bristol-Myers Squibb to produce Taxol worldwide in 1992. The deal generated more than \$351 million in royalty income, the most ever from any university-licensed technology in the United States.

Taxol vial. Courtesy photo.





FLORIDA STATE UNIVERSITY
COLLEGE OF ARTS & SCIENCES

Send a note of thanks

Students don't always realize how much it means to faculty to hear words of appreciation, so FSU's Center for the Advancement of Teaching created the Thank a Professor program in 2017 to provide an avenue for students and alumni to convey their gratitude to the faculty members who made a difference in their careers and lives.

When you submit a message online, the center's staffers will pass it along in a letter to the faculty member and their chair. The group also highlights themes and selected stories in its weekly email newsletter to all faculty.

Ready to let a faculty member know just how much their time, expertise or compassion meant to you? Visit teaching.fsu.edu/thank-a-professor and submit your note today.



Hand-colored postcard of the Florida State College for Women administration building, circa 1940s.

SPECTRUM

FLORIDA STATE UNIVERSITY COLLEGE OF ARTS & SCIENCES

The official magazine of the Florida State
University College of Arts and Sciences

Sam Huckaba
Dean

Heather Athey
Editor-in-chief

FSU Creative Services
Design

Contributors
Rodney Campbell
Kendall Cooper
Emma Cryer
McKenzie Harris
Kelsey Klopfenstein
Thomas Morgan
Amy Walden

Photographers
McKenzie Harris
Bill Lax
Bruce Palmer
Amy Walden

Letters to the editor
spectrum@fsu.edu

Visit the college online
artsandsciences.fsu.edu

