

# SPECTRUM

FLORIDA STATE UNIVERSITY COLLEGE OF ARTS & SCIENCES

Winter 2020





## From the Dean

about the start of a new academic year. I am so proud of the hard work the college's faculty, staff and students put into helping the university achieve this recognition. While we do join in the applause, most prominent is our commitment to the relentless pursuit of academic excellence that drives our activities day after day, and year after year.

Across the college, faculty productivity has never been higher and student performance continues to exceed expectations. Their stories, along with impressive alumni achievements, are just some of the highlights you will find in Spectrum and on our digital media outlets.

As we look ahead to the promise of spring, it is my pleasure to remind you of the value this institution brings to its graduates and the larger community. Our ability to secure a reputation as a premier Research I university and to recruit outstanding students and faculty are dependent on the paths forged by you, the college's alumni.

Thank you for your continued connection to FSU and for being the heart of the College of Arts and Sciences.

Welcome to this edition of Spectrum magazine, the alumni publication of the Florida State University College of Arts and Sciences. The autumn term burst forth with the arrival of more than 7,000 freshmen displaying spectacular academic credentials and an invigorating enthusiasm to learn.

Here in the college, we welcomed nearly 25 new faculty members across our 18 departments and are pleased to report the new Earth, Ocean and Atmospheric Science building is virtually complete. We look forward to formally dedicating the building this spring and watching from its lofty vantage as the new Oglesby Student Union takes shape across Woodward Avenue.

The news that Florida State University has again risen in the U.S. News and World Report rankings, this time to No. 18 on the list of U.S. public universities, boosted spirits on a campus already excited

A handwritten signature in black ink that reads "Sam Huckaba". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Sam Huckaba  
*Dean, College of Arts & Sciences*

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## Gift a promising future

Charitable bequests, or gifts from a will or trust, are among the easiest ways to support Florida State University in its mission to transform the lives of students today and for generations to come.

A charitable bequest to the College of Arts and Sciences is a simple, flexible and versatile way to make a future contribution, and creating an enduring legacy is attainable for many because gifts both large and small make a meaningful impact. Even better, as a charitable bequest donor, you can make a commitment to the area most important to you.

Assets including cash, securities, real estate, tangible personal property and closely held stock are eligible. If you'd

rather simplify your gift, bequest language can include a specified amount or a percentage of your estate.

Stipulating support through a charitable bequest costs nothing during your lifetime. You maintain complete control of your assets and may change your gift at any time.

Charitable bequests can also provide material benefits to you. If an estate is subject to an estate tax, your gift is entitled to an estate tax charitable deduction for its full value.

For more information, or to make a gift, contact Nancy Smilowitz, the college's assistant dean for development, at 850.294.1034 or [nsmilowitz@fsu.edu](mailto:nsmilowitz@fsu.edu).

### On the cover

The Florida State University seal inset from FSU alumna Artemis Skevakis Jegart's "The University Sunrise to Sunset," 2001, oil on canvas. The mural, a gift from the classes of 1949 and 1950 and the artist's patrons, is installed in Dodd Hall.



### Correction

The cover image from the Summer 2019 issue was conceived and executed by Florida State University's Bayard Stern and Hailey Walsh. We regret the misidentification.

# Nole Notes

The top news from  
around the college

## Florida State University joins nation's Top 20

In the greatest single-year improvement in university history, Florida State University soared eight spots to No. 18 among national public universities in the latest *U.S. News*

*& World Report* rankings, meeting and well exceeding its goal of joining the Top 25.

"It's an incredible accomplishment for Florida State University," said President John

Thrasher. "The credit goes to so many people — our faculty, our staff, and certainly, our great students. I couldn't be prouder."

FSU ranked No. 26 last year and has risen 25 spots among public universities since placing No. 43 in 2016. While reaching the Top 20 is a validation of its national prominence, Florida State's sole focus isn't rankings. Provost and Executive Vice President for Academic Affairs Sally McRorie points to the university's emphasis on student success as the primary factor in FSU's rapid ascent over the past few years.

Related factors such as improvements in graduation rates, student-faculty ratio and percentage of full-time faculty also contributed to FSU's ranking.

FSU's average six-year graduation rate increased to 80.5 percent, up 3 percentage points in three years. FSU also improved its student-faculty ratio to 21-to-1, hiring 125 new faculty in 2018 to improve class size and research. More than 50 percent of FSU's classes are smaller than 20 students.

## Chemical Sciences Laboratory renamed in honor of Nobel winner

Family, friends and colleagues of the late professor **Sir Harold Kroto** honored the Nobel Laureate's memory by dedicating the auditorium of the FSU Chemical Sciences Laboratory in his honor this fall.

Kroto — who was awarded the 1996 Nobel Prize in Chemistry for the discovery of the Buckminsterfullerene molecule — joined the

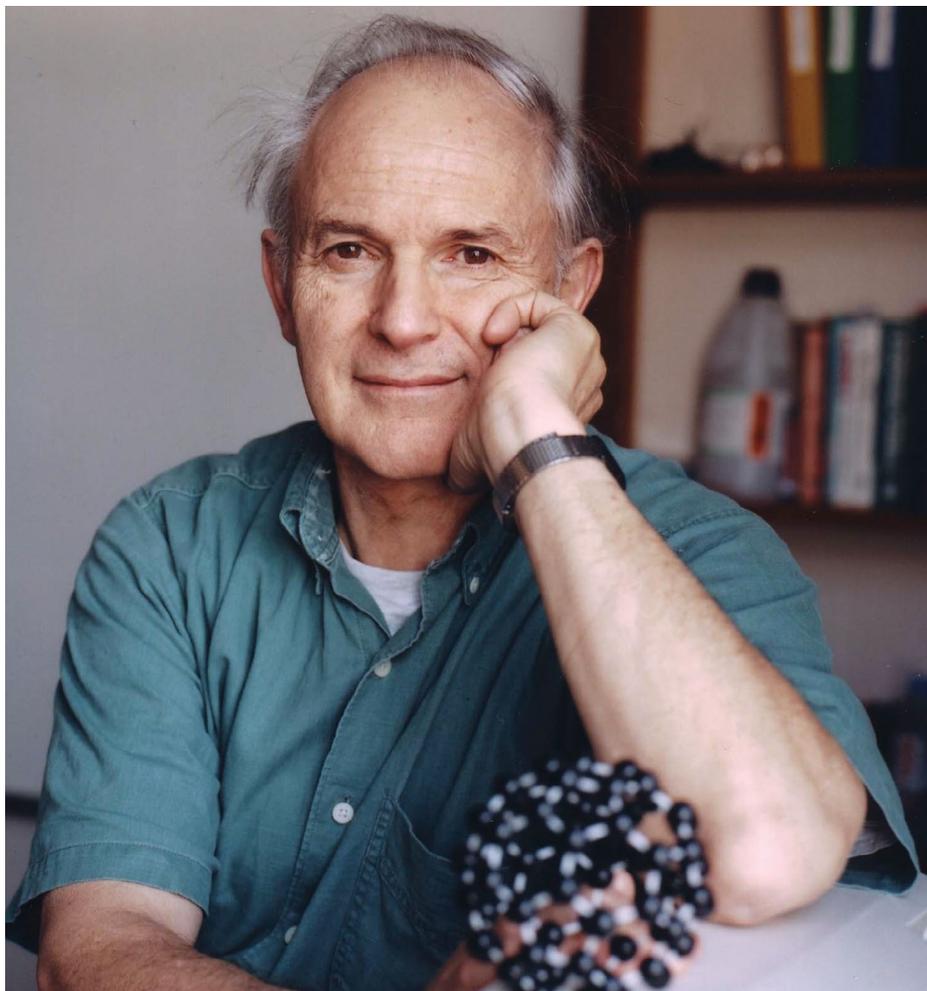
FSU faculty in 2004. During his time at Florida State, Kroto conducted public education workshops, mentored undergraduate and graduate students, and held annual "Opening Minds" lectures to spur creativity and scientific experimentation within the university and surrounding community.

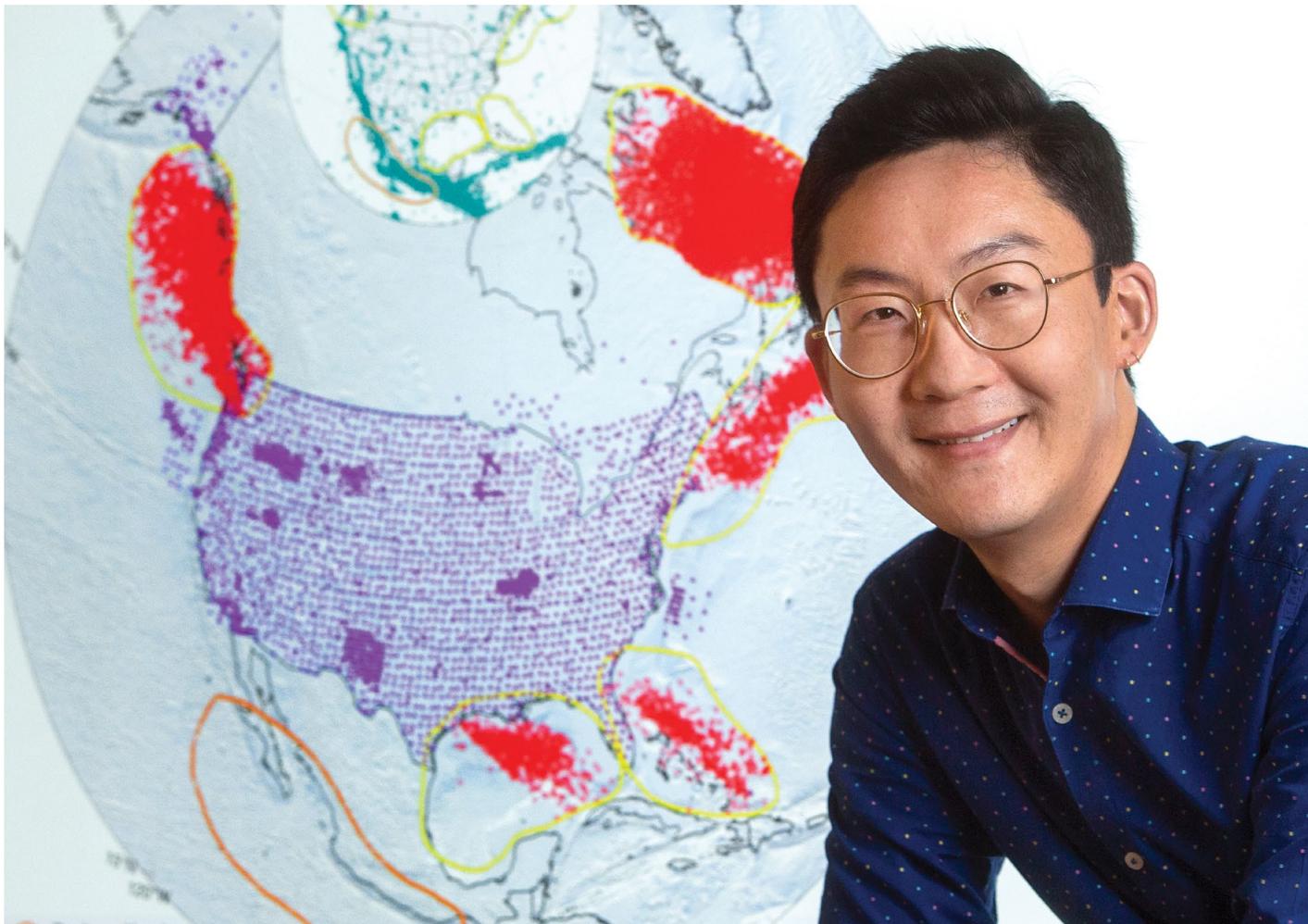
## FSU researchers discover a new geophysical phenomenon

"Stormquakes" happen when a hurricane or other strong storm sparks seismic events in the ocean as strong as a 3.5 magnitude earthquake.

Lead author **Wenyuan Fan**, an assistant professor of Earth, Ocean and Atmospheric Science, said stormquakes involve coupling of the atmosphere-ocean and solid earth.

Sir Harold Kroto





Wenyuan Fan

"During a storm season, hurricanes or nor'easters transfer energy into the ocean as strong ocean waves, and the waves interact with the solid earth, producing intense seismic source activity," he said.

Fan and his colleagues analyzed seismic and oceanographic records from September 2006 to February 2019 and found a connection between strong storms and intense seismic activity near the edge of continental shelves or ocean banks.

Evidence of more than 10,000 stormquakes during that period was found in offshore areas of New England, Florida, the Gulf of Mexico, Nova Scotia, Newfoundland and British Columbia.



Thomas Joiner

### Researcher honored for psychological science contributions

Leading suicide researcher **Thomas Joiner**, FSU's Robert O. Lawton Distinguished Professor of Psychology, is a recipient of the 2020 James McKeen Cattell Fellow Award from the Association of Psychological Science. The award recognizes APS members for a lifetime of outstanding contributions to the area of applied psychological research.

Joiner is the director of the Laboratory for the Study and Prevention of Suicide-Related Conditions and Behaviors at FSU and over the course of his career has authored or edited more than 695 peer-reviewed publications and 18 books, won major awards and grants, and made numerous radio, print and television appearances.



*Kathleen Blake Yancey*

## English professor receives NCTE award

**Kathleen Blake Yancey**, the Kellogg W. Hunt Professor of English and Distinguished Research Professor, is the recipient of the National Council of Teachers of English James R. Squire Award in recognition of outstanding service and lasting intellectual impact on the profession of education as a whole.

Yancey has authored, edited, or co-edited 16 scholarly books and two textbooks and more than 100 articles and book chapters. Her scholarship focuses on composition studies; on students' transfer of writing knowledge and practice; on cultural studies of everyday writing; on writing assessment, especially print and electronic portfolios; and on the intersections of culture, literacies and technologies.

## \$1.19M NIH grant to examine critical cellular processes

This National Institutes of Health grant funds researchers' use of molecular archaeology to investigate evolution of critical cellular processes that often go awry in human diseases, including diabetes. Brian Miller, professor of Chemistry and Biochemistry, and **Carl Whittington**, assistant in research in the Department of Biological Science, are taking a cross-disciplinary approach to understand how critical protein regulatory mechanisms arose in cells over evolutionary history.



*Carl Whittington*

They will examine the history of glucokinase, a type of enzymatic protein that serves as the body's primary glucose sensor as it relays signals in the pancreas and liver, by resurrecting a 640 million-year-old ancestor of the protein in the lab. The process will yield a detailed accounting of all the mutations that occurred in glucokinase over the last several hundred million years.

## Fulbright-winning faculty share expertise worldwide

FSU continues to be one of the nation's top institutions in producing Fulbright U.S. Scholars. The Fulbright U.S. Scholar Program operates in more than 125 countries and this year, seven FSU faculty members will conduct research in nine.

Three of the seven faculty scholars awarded Fulbright grants for 2019-20 are from the College of Arts and Sciences:

**J. Perry Howell**, associate lecturer in the Department of English, received a Fulbright U.S. Scholar award to teach at Japan's Yokohama National University and Tokai University.

**Ziad Musslimani**, a mathematics professor, received a Fulbright U.S. Scholar award to teach and conduct research at the University of Amsterdam in the Netherlands. He will focus on computational mathematics with applications to the physical sciences and integration of mathematical education into modern research.

**Sharon Nicholson**, professor of meteorology in the Department of Earth, Ocean and Atmospheric Science, received a Fulbright Global Scholar Award to conduct research at the Gobabeb Training and Research Centre in Namibia, the University of Montpellier in France and the Karlsruhe Institute of Technology in Germany.



## Religion doctoral candidate wins fellowship to study abroad in India

**Rebecca Peters** has won a Fulbright-Hays Doctoral Dissertation Research Abroad Fellowship for 2020. She will travel to Mumbai, India, in January and use the \$44,000 award through December 2020 in her research on how the culture of Hinduism informs content the Bollywood produces, specifically the portrayal of gender roles, for its worldwide audience of 3 billion.

The award, given by the U.S. Department of Education International and Foreign Language Education Office, has the expressed goal of deepening U.S. knowledge of non-western countries, cultures and languages.



*J. Perry Howell*



*Ziad Musslimani*



*Sharon Nicholson*



Rebecca Peters



Steven Stanley

## Eminent scientist, National Academy member joins FSU

Since August, evolutionary biologist **Steven Stanley** has collaborated with researchers in the Department of Biological Science on projects ranging from dinosaur evolution to the intricacies of gastropods. He is also mentoring

younger faculty members building their own research agendas.

Stanley received his doctorate from Yale University in 1968 and spent most of his career at Johns Hopkins University. He is best known for using fossil data to explain that most evolution is concentrated in brief events. Stanley has been a research associate at the Smithsonian Institution since 1972, and will maintain a lab at the Smithsonian Museum of Natural History.

## New \$2M grant aimed at high-energy physics research

FSU researchers were awarded more than \$2.2 million by the U.S. Department of Energy in October to conduct research in experimental and theoretical high-energy physics. The grant supports the work of eight faculty members who are part of the high-energy physics group at Florida State, including professors **Todd Adams**, Harrison Prosper and Laura Reina; associate professors Andrew Askew, Fernando Febres Cordero and Takemichi Okui; and assistant professors Ted Kolberg



Todd Adams

and Kohsaku Tobioka. It also will fund three postdoctoral researchers and up to five graduate students.

For more than six decades, FSU HEP's experimental physicists and theoretical physicists have contributed to some of the world's most exciting discoveries, including the 2012 discovery of the Higgs boson.

## Nole Notes



Rebecca Lehmann

### FSU alumna wins prize for poetry

**Rebecca Lehmann**, who earned her Ph.D. in creative writing and literary theory in 2011, has won the 2018 Donald Hall Prize for Poetry through the Association of Writers and Writing Programs for her collection of poetry, "Ringer."

### Professor ranked in top 100 analytical scientists



**Michael Roper**, a professor in the Department of Chemistry and Biochemistry, was named to The Analytical Scientist's 2019 "Power List," in recognition of his

work studying cellular dynamics in microfluidics systems. Roper, who has been awarded three NIH grants for his research, is among the youngest listed and is the only person from the State of Florida to make it on the list.

The Power List identifies the top 100 scientists in the field of analytical science and celebrates their leadership, talent and ingenuity.



Exhibition: "Printing the Past: Innovative Technology in Archaeology at Florida State University"

### Innovative tech brings the past alive

Visitors to Dirac Science Library had a hands-on historical experience with artifacts discovered during archeological digs in Italy, thanks to scale models and 3D-printed reproductions fashioned via cutting-edge techniques.

The Classics department's Student Archaeology Club, in collaboration with the FSU Innovation Hub and the Tallahassee Society of the Archaeological Institute of America, conceived and presented "Printing the Past: Innovative Technology in Archaeology at Florida State University," a collaboration among humanities, technology and science disciplines that highlighted how photogrammetry, 3D printing and laser scanning can be used in a museum context to help interpret archaeological sites.

### Computational biology researcher named AAAS Fellow

Professor of scientific computing **Peter Beerli** has been named a fellow of the American Association for the Advancement of Science, a lifetime distinction that recognizes contributions to science and technology.

Beerli is one of 443 new AAAS fellows, comprising scientists from neuroscience to psychology to social, economic and political sciences. The honor recognizes pioneering research, leadership within a given field, teaching, mentoring, fostering collaborations and advancing public knowledge of science.

His daily work involves developing new methods and writing new programs for genetic analysis and making improvements to his existing programs. Beerli's software has been used by numerous conservation and evolutionary biologists across the world to conduct sophisticated population genetic analysis.

Peter Beerli



Beerli, a faculty member at Florida State since 2003, received his doctoral degree in zoology from the University of Zurich and worked as a postdoctoral researcher, research assistant and research assistant professor at University of Washington from 1994-2003.

## GradWorld FSU showcases global community of scholars

Florida State's global community and international reach is now accessible around the globe through the revolutionary website, GradWorld FSU.

Similar to Google Earth, GradWorld FSU displays a variety of personalized videos from a number of departments and colleges on campus for the purpose of showcasing graduate student achievements and their tremendous contributions to the university and the world at large.

"This is an extraordinary opportunity for everyone around the world to see our students' and researchers' passion, interests and research goals and learn more about Florida State University," said Mark Riley, dean of the Graduate School and a physics professor. "Our goal is to highlight FSU's brilliant students, postdocs and faculty as well as attract potential graduate students to apply to Florida State and join this great scholarly community."

Visitors to GradWorld FSU will find more than 250 videos from graduate students, postdoctoral researchers, faculty and alumni, representing over 30 countries and nearly 70 different degree programs. The database is sortable by country of origin, language, college, degree program and degree level.

To increase the website's global reach, international participants are asked to record two videos — one in English and one in their native tongue — with the hope of inspiring their countrymen and countrywomen to apply to Florida State.

Inspired by the late FSU chemistry professor and Nobel Laureate Sir Harry Kroto's



GEOSET project, GradWorld FSU is a joint endeavor by Riley, the Graduate School, University Communications, GEOSET Studios, University Libraries and the Center for Intensive English Studies.

## Professor awarded early-career research fellowship

**Mariana Fuentes**, an assistant professor of oceanography at the Department of Earth, Ocean and Atmospheric Science, received the Gulf Research Program's Early-Career Research Fellowship from the National Academies of Sciences Engineering Medicine, or NASEM, recognizing her work with marine megafauna.

Fuentes' research aims to advance the conservation and management of marine animals, specifically sea turtles, as well as dolphins and sharks, and her expertise is in integrating field-based ecology with systematic conservation planning, decision-theory approaches, climate modeling, and applied qualitative and geographic spatial analysis. She uses these tools to explore how marine wildlife interact with environmental processes and how they are impacted by current and future threats.

The Gulf Research Program, established by NASEM, is dedicated to catalyzing advances in science, practice and capacity to generate long-term benefits for the Gulf of Mexico region and the nation.

The fellowship is awarded to emerging scientific leaders as they set out to take on new research, pursue unique collaborations, and build a network of colleagues working to improve the resilience of coastal communities and ecosystems. Each of the 20 selected fellows receives a two-year grant to fund research expenses and professional development. <

*Mariana Fuentes*





# Meteorologist in Manhattan

WNBC-New York Chief Meteorologist Janice Huff has a heart of garnet and gold. The Florida State University alumna chased her dreams all the way to the Big Apple and is boldly blazing the trail for future forecasters.

By Amy Robinson

For New Yorkers, Janice Huff is a household name. At Florida State University's Department of Earth, Ocean and Atmospheric Science, she is nothing short of a legend.

"I first became interested in weather when I was child, probably around five years old," Huff said. "I loved science and watching clouds change shape and morph into thunderstorms — I was afraid of lightning but fascinated with storms."

It was a gift from Huff's mother that put a name to her passion.

"When I was eight, long before the internet, my mother bought me a set of World Book Encyclopedias. One day I was looking through the "M" book and came upon the subject 'meteorology.' That's when I decided I wanted to become a meteorologist!"

In 1978, Huff graduated from Eau Claire High School in Columbia, South Carolina, with acceptance letters from three universities: North Carolina State, the University of Florida, and Florida State.

"FSU invited pre-admission students to Tallahassee for a weekend tour of the campus. I never got to the other schools because I fell in love with the university!"

Huff's college career coincided with several iconic moments in FSU history including Bobby Bowden's heyday, the hiring of Mike Martin and the opening of the Donald L. Tucker Civic Center.

After earning a Bachelor of Science in meteorology, Huff landed a job as a weekend meteorologist for WTVN in Chattanooga, Tennessee. Even early in her career, Huff's forecasting prowess

was as undeniable as her charm. It wasn't long before she began taking larger television markets by storm, accepting offers from stations in Tennessee, Georgia, Missouri, California and, ultimately, the No. 1 market in the country, New York City.

In 1995, Huff joined the team at WNBC, where she would go on to become the station's chief meteorologist. It's the position she holds today, now leading a team of four full-time forecasters. For the entire 25 years of her tenure at WNBC, Huff has been the only female chief meteorologist in New York City.

Her dedication and passion for her work have opened many doors along the way.

"One of the best memories of my career was interviewing President Barack Obama in the Rose Garden of the White House and reporting live from the press briefing room. I was there with a group of meteorologists and weathercasters from around the country to discuss the annual Climate Assessment of the nation," Huff said. "It was truly an out-of-body experience."

Another fond memory is when Huff received the call from the American Meteorological Society that she had been elected a Fellow, one of the organization's greatest honors.

"I had no idea I had been nominated. I'm still in shock I was chosen with the likes of the late Ted Fujita, Joanne Simpson, and FSU's James O'Brien and T.N. Krishnamurti."

Other notable FSU grads who are Fellows include Marshall Shepherd (past AMS president) and Alan Sealls (past National Weather Association president).

Huff hasn't forgotten her roots, however, and frequently returns to Tallahassee to mentor students. She most recently returned in October during FSU Homecoming Week, speaking to students at the annual alumni meteorology workshop.

Huff makes it a point to attend the workshops and meet with as many students as possible.

She has missed just two sessions in the workshop's 22-year history.

That Saturday, Huff and other distinguished meteorology alumni — including Bryan Norcross, Nancy Dignon, Alan Sealls, Mike McCall, Chris Smith, and Yolanda Amadeo — met with FSU meteorology students and critiqued their forecast tapes.

"It's important for the broadcast students to connect with alumni working in the field. It's just as important for me to get to know them and talk about my experiences in TV meteorology. They need to know it's possible to become just as successful," Huff said.

FSU associate professor of meteorology Jon Ahlquist has organized the workshop for years and seemingly remembers every student who has ever graced the greenscreen.

"Our annual weathercasting workshop is designed so that FSU weathercasting students hear from professionals in the field rather than just from me as the instructor. Students are inspired by alumni like Janice who have attained and have maintained status in major markets and who give back selflessly to FSU," Ahlquist said.

Sophomore meteorology student Jonathan Marcus attended the workshop to get feedback on tapes from his first semester in weather broadcasting.

*Janice Huff and attendees at the 2019 meteorology workshop.*

"Janice Huff has been in one of the most competitive and largest television markets for the past 25 years now, showcasing her infectious personality and commitment to public safety. Yet time and time again, she comes back to FSU to help out those of us just beginning in the field," Marcus said. "I believe that truly showcases her character."

Student Sloane Haines describes the FSU meteorology program as a family, a point validated by the impressive number of accomplished alumni that return for events such as the weather workshop.

"I am very grateful that we have such an impressive alumni network, from New York City to the Weather Channel in Atlanta and the West Coast," Haines said. "Being a woman and a minority in a STEM field can be intimidating at times, but having powerful women to look up to, such as Janice Huff and Yolanda Amadeo, is inspiring. These women have accomplished so much in their careers."

Huff says her advice to aspiring meteorology students is simple; be patient, never stop learning and stay true to yourself.

"Let your passion shine through and work will never seem like 'work,'" Huff said. "When it stops being fun, it's time to move on." <





# Grad Made Good

**Dr. David James  
Kennedy cements  
a Seminole legacy**

*By Doug Blackburn*

**Dr.** David James “D.J.” Kennedy loves a challenge. A two-time state weight-lifting champion at Wakulla High School, he came to Florida State University in 1996 knowing he wanted to be involved in the Seminoles’ strength and conditioning program under legendary football coach Bobby Bowden.

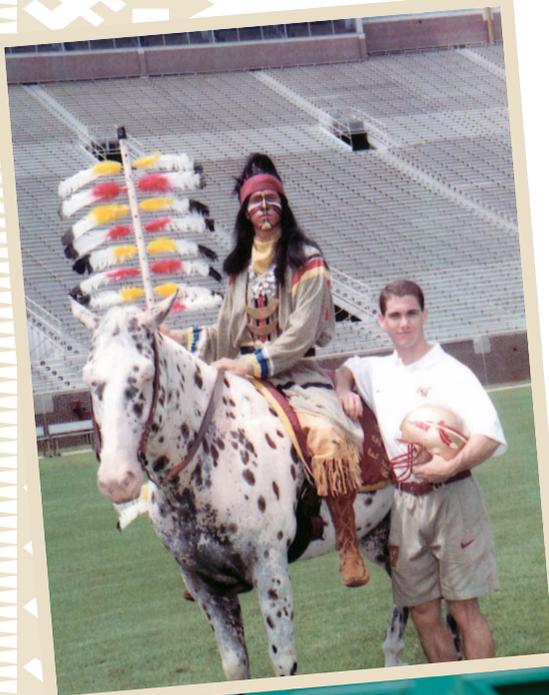
After quickly achieving that goal, he set his sights on a new target. He decided he wanted to go to medical school and become a physician.

Today, Kennedy is thriving at Vanderbilt Medical Center in Nashville, Tennessee, where he is a professor, chairs the Department of Physical Medicine and Rehabilitation, and supervises more than 200 faculty and staff members.

“I like to be challenged. I want to do something different and make a difference,” Kennedy said. “I still have a ton to learn. In modern medicine, we still haven’t solved back pain.”

Kennedy’s current practice concentrates on non-operative and interventional spine care and his research has focused on the safety and efficacy of interventional spine procedures, changing the standard of care in his field.

His work pioneering safe injection techniques and his standing as an internationally recognized expert in interventional spine procedures are part of what landed him one of the FSU Alumni Association’s highest honors, the Grad Made Good Award, given for demonstrated dedication to excellence in teaching, research, creative endeavors and service.



Kennedy accepted his award during Homecoming Weekend in October and credits much of his success to his undergraduate career at FSU, where courses like evolutionary biology that he took with Robert O. Lawton Distinguished Professor and former College of Arts and Sciences dean Joseph Travis helped reaffirm the value of critical thought.

"I remember thinking what a breath of fresh air it was. It was a class on how to think. It has served me so well," Kennedy said.

He also had an opportunity to conduct research under Naresh Dalal, another recipient of the Robert O. Lawton Distinguished Professor Award, the highest honor bestowed on faculty members at Florida State.

"D.J. was one of the best students I ever had," Dalal said. "He did research with me on biological systems. I wanted to make him a real chemist and he said, 'No, Doctor Dalal, I want to be a physician.' I had no doubt in my mind that he was going to be a very, very good doctor."

Kennedy earned a Bachelor of Science in biology, with honors, from Florida State University in 1999 before going off to medical school at the University of Florida. He then did a fellowship at Tulane University before entering a residency program at the University of Washington in Seattle, where he served as chief resident.

During his residency he also met his wife, Lindsey, at Seattle Children's Hospital. They have a daughter, Arianna Rose, who is almost 5, and are expecting a second child this spring.

Before starting at Vanderbilt Medical Center in April 2018, Kennedy served as residency program director at Stanford

University's Department of Orthopedics.

"I loved Stanford. What's not to love?" he said. "It's a world-renowned institution. But Vanderbilt represented a truly unique opportunity. It was a step forward and offered a great ability to make a difference."

Kennedy is a highly regarded speaker and regularly receives requests from across the globe to present at conferences and institutions. It's a skill he honed at an early age as the valedictorian of his high school class.

"They are still talking about his commencement speech at Wakulla High School," said Ann Kennedy, his mother and a retired biology and chemistry teacher at the school. "He has always needed to be challenged. It's a good thing. I didn't know he was going to go to med school, but he couldn't see himself continuing working with the strength coach. He realized he liked other things, too."

Kennedy's father, Bill, a retired disability examiner with the state and a sixth-generation Wakulla County native, marvels at his son's speaking ability.

"He has a way with words and convincing people," Bill said. "He's really good at that. He's a fantastic orator."

Kennedy has had no trouble convincing his wife and daughter to join him as lifelong Seminole fans. His daughter mastered the War Chant before she was 2, and now sings the entire fight song.

"I'm thrilled to have attended Florida State. I can't imagine a school that would have set me up for a better life," Kennedy said. "With the new national rankings, the rest of the world is starting to recognize what we have known for decades." <



*Dr. David James Kennedy. Courtesy photos.*



# *Physics phenom*

From Trinidad and Tobago to Tallahassee, Kalisa Villafana writes a new chapter

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*By Rodney Campbell*

A funny thing happened to Kalisa Villafana a few months before earning her Ph.D. in nuclear physics at Florida State University. She discovered she was making history.

After enrolling in the physics graduate program in 2012 and attending a few National Society of Black Physicists conferences, where she met a lot of women who were “firsts” at their university, Villafana began to wonder if FSU had ever had a black woman in its physics program.

“I decided to look into it more and contacted the archives department at FSU,” said Villafana, who earned her master’s degree in 2015 and completed her Ph.D. in August. “I was able to confirm that I would be the first black woman to earn a Ph.D. in the FSU physics department.”

The feat is just as impressive on a national scale. Villafana became just the 96th black woman in the country to ever earn a Ph.D. in physics.

"I know Kalisa has been somewhat surprised by all this attention but she definitely deserves it," said Mark Riley, Villafana's major professor since 2013 and current dean of the FSU Graduate School.

Villafana is accustomed to taking an unconventional route to earning her education. After graduating from an all-girls school in her native Trinidad and Tobago, she was one of only seven women in her physics classes while earning her undergraduate degree at Florida A&M University.

Strong mentors helped Villafana achieve her goal of earning a physics degree, a dream she had from age 12. After taking a year off to work as a teacher back home, she became a mentor at FSU by joining the Florida Georgia Louis Stokes Alliance for Minority Participation, a partnership with the National Science Foundation to increase the numbers of minority STEM bachelor's, master's and Ph.D. recipients. The NSF, along with the State of Florida, funded Kalisa's research within the experimental nuclear physics group.

"I received so many emails from young people who wanted to pursue the field and wondered how they could get to this point," Villafana said. "I tried to encourage and mentor people. It made me do my best."

Overseeing her research efforts and seeing her on a daily basis gave Riley a clear view of Villafana's hard-earned knowledge and passion for her field.

"Kalisa is a superstar," he said. "She is brilliant, persistent and has a fabulous sense of humor. She cares about people and moving the world forward to a better tomorrow. It has been a joy to work with her and the research results she has produced are simply outstanding."

For her thesis, Villafana analyzed complicated high-resolution gamma-ray spectroscopy data from a nuclear fusion evaporation reaction experiment at the John D. Fox Superconducting Linear Accelerator Laboratory on campus. She then examined findings from a second experi-

ment at Argonne National Laboratory in Chicago using the world's most powerful gamma-ray detector, Gammasphere, which was featured in the 2003 movie "Hulk."

Villafana spent several years sifting through complex datasets to extract results on the structure behavior of a number of exotic isotopes of tungsten, gadolinium and samarium atomic nuclei.

"Part of the fun of graduate school is to be the first human to discover something no one else had ever seen, and Kalisa discovered a lot of new stuff," Riley said. "We have already published a paper in The Physical Review on the superfluid correlations between the protons and neutrons in these and neighboring heavy nuclear systems and how these correlations respond to increasing angular momentum and excitation energy. No other group in the world had done this in such a comprehensive and elegant systematic way."

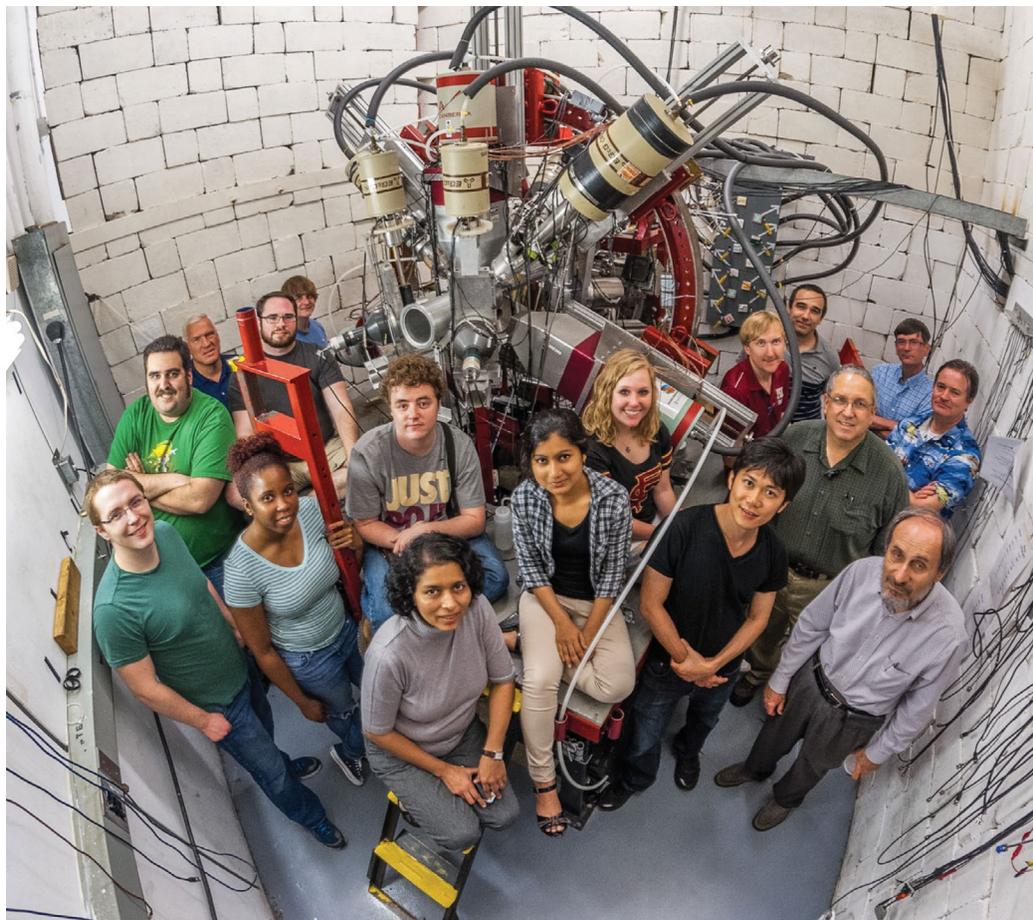
Villafana's accomplishments helped her secure a job at Intel six months before graduation. It was a seed first planted in 2017 when she met one of the company's recruiters at a FAMU-FSU College of Engineering workshop.

A year before her planned graduation, she followed up with Intel. The company responded and interviewed Villafana last winter. A week after the meeting, she was offered the job and the company was willing to wait six months for Villafana to finish her degree. In August, she packed her bags and moved nearly 1,900 miles from Tallahassee to Chandler, Arizona, to start her job as a process engineer.

"I'm doing a lot of data analysis," she said. "Things that I did for my Ph.D. are helping me."

Villafana plans to continue helping others as part of her work. She may no longer be at FSU, but the lessons she learned in Tallahassee will last a lifetime. <

*Kalisa Villafana and the FSU team at the Gammasphere. Courtesy photos.*





*Courtesy photo*

# a family affair

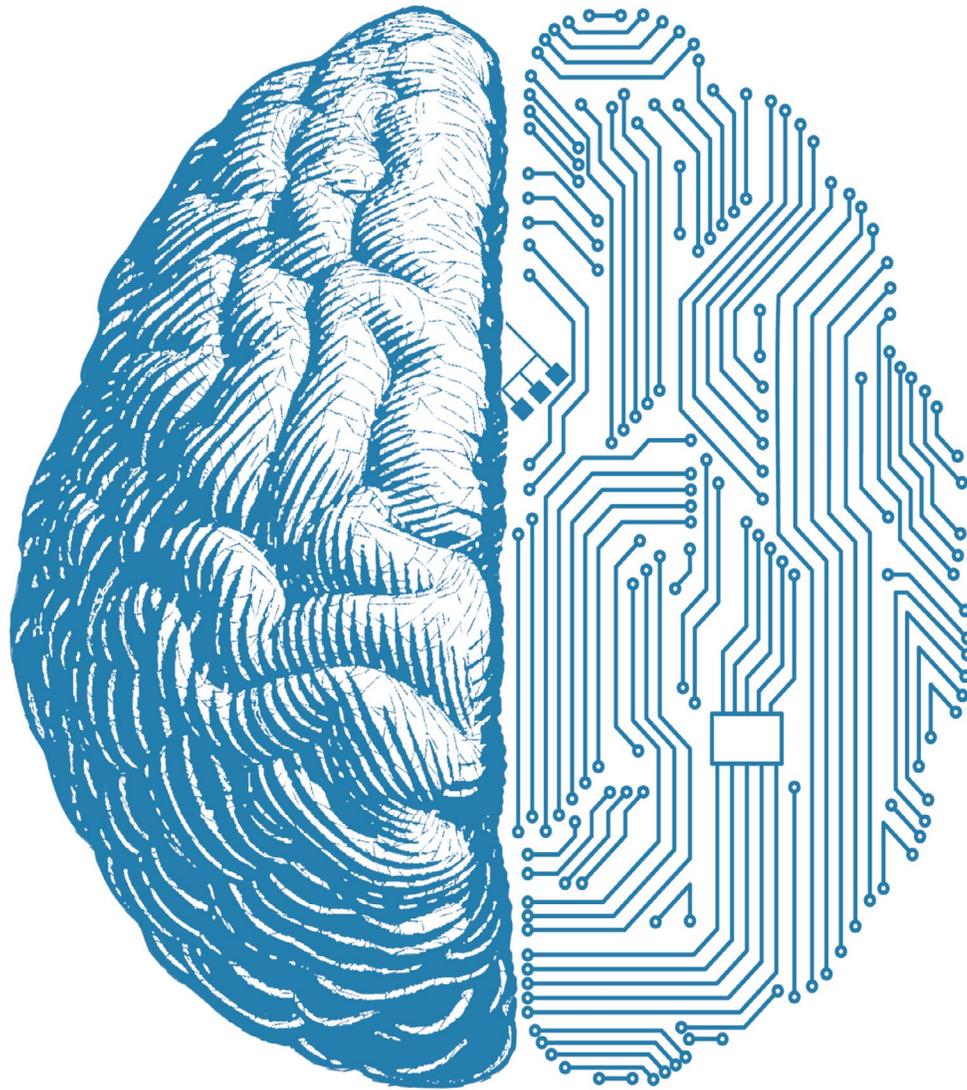
Madison and Jesse Marks propel one another to international success

By Amy Robinson

When Florida State University graduates Madison and Jesse Marks talk about the countries they've visited and experiences they've had, it's hard to believe the siblings have yet to reach their 30th birthdays.

Since graduating from FSU in 2013, Madison has lived in Washington, D.C., Jordan, Lebanon, Qatar and, now, the United Arab Emirates. She worked for Qatar Foundation International, leading an effort to support Arabic language and cultural programming in K-12 schools across the U.S., while earning her master's degree from Georgetown University. In October, she accepted a position as exposure manager for Expo 2020 Dubai.





# ***Perfect pairings***

*Philosophy, computer science honors grad sets sights on IBM career*

————— *By Amy Robinson* —————

*“I think the day I got an offer from IBM, I also got an invitation to interview at Google, but I turned them down,” recent Florida State University graduate Randy Bruno-Piverger said, with a soft laugh of disbelief.*

In August, Bruno-Piverger began his new job as a software engineer for IBM. Earlier that same month, he graduated from FSU with two degrees — and honors — in philosophy and computer science. And while he describes himself as “lucky” for landing the job before graduation, it’s clear that Bruno-Piverger’s decision to pursue dual degrees gave him an edge.

### **Crossing disciplines**

“I knew I wanted to at least attempt a double major,” he said. “As I became more involved with computer science, I realized that to be competitive in both fields post-graduation, I would need a thorough education in both areas and decided to complete the full degrees simultaneously.”

Students don’t always recognize the connection between the schools of the humanities, philosophy for example, and the sciences that sprang forth as a result of such philosophical cogitation. Initially, the two camps appear polar opposites, but in reality, philosophy is at the core of the conceptualization of many scientific principles.

It’s no coincidence that scores of great minds throughout history — Descartes, Galileo, Newton, Einstein and more — are credited as both philosophers and scientists. Bruno-Piverger said his two different degree paths actually overlapped and complemented one another.

“Computer science is the study of machines and software at the low and high level. Our machines and software are driven by logic. At the low level, a CPU contains the building blocks of a logical argument: ‘if,’ ‘then,’ ‘or,’ ‘not,’” he said. “Within the CPU, logical arguments are replicated using nanoscopic wiring, allowing programmers to build machines capable of logic-based computation and general problem-solving. These same logic operators are the elements of one of philosophy’s most basic tools, the syllogism, or an argument that employs deductive reasoning to arrive at a conclusion.”

### **A different way of thinking**

Bruno-Piverger’s former professors at FSU said his ability to see the bigger picture, and the

harmony between fields of study, is an impressive quality.

David A. Gaitros, a teaching professor in the Department of Computer Science, described his student as an interesting person who possesses the ability and high level of intelligence to examine the philosophical and practical side of virtually any subject.

Associate professor of philosophy Simon May echoed the sentiment.

“Randy’s honors thesis discusses what would be required for artificial beings to have moral status, that is, for it to matter morally what happens to an artificial being just because of how that being’s existence is affected. Answering this question requires not only knowledge of technical advances and possibilities, but a great deal of moral insight and imagination.”

### **Commitment and challenge**

Bruno-Piverger encourages other students to considering pursuing dual degrees, but cautions those inclined toward such a path that the decision should not be made lightly.

“One question worth considering after this determination is how much time are you willing to sacrifice to complete your undergraduate studies,” Bruno-Piverger said. “I graduated well behind my high school peers. Life isn’t a race, but personal and career opportunity is an

ever-changing element of achievement, and by choosing to give time to a dual-degree program you invariably lose the chance to pursue other opportunities. These opportunity costs should be included in your considerations, as well.”

### **Learning beyond the classroom**

Bruno-Piverger also worked as a research programmer at the FSU Center for Oceanic and Atmospheric Prediction Studies, contributing to such projects as the Shipboard Automated Meteorological and Oceanographic System Initiative and the International Comprehensive Ocean-Atmosphere Data Set.

His primary responsibilities involved writing software to collect, organize, and represent data from the National Oceanic and Atmospheric Administration for more efficient use by meteorologists. His work allowed for environmental differences to be incorporated in collection methods, thereby creating a more accurate dataset for weather forecasting.

Balancing work and studies, although sometimes challenging, provided Bruno-Piverger with academic support and a highly-enriching work experience. The people, he added, were the most valuable resource at COAPS.

“You’re making a lot of connections, you’re learning about how to work with others, how to be responsible as a developer. Those are things that a class might not teach you,” Bruno-Piverger said. <



Courtesy photo

*Life isn’t a race, but personal and career opportunity is an ever-changing element of achievement.”*

*— Randy Bruno-Piverger*



# Championing access

*Ellen Cecil-Lemkin is paving the way to inclusivity*

— *By Leah Fleurimond* —

*Ellen Cecil-Lemkin's life at Florida State University is all about accessibility: creating accessibility in her classroom, advocating to make education accessible to all students, and asserting herself for the accessibility she needs to live with a disability.*

If you've been on campus lately, you may have seen the doctoral candidate and Rosie, her Great Pyrenees, walking to an English class. Or you may have seen her out championing FSU's Student Disability Resource Center.

### **Ambassador for access**

The SDRC works with more than 5,000 FSU students a year to make necessary adjustments to housing, food, transportation and classroom experiences that allow students with documented disabilities to succeed. Some common academic

accommodations may include extending testing time, having a peer take notes, and using assistive technology such as digital recorders.

Cecil-Lemkin is one of SDRC's inaugural student ambassadors, who work to increase awareness of the center through outreach to the FSU community.

"By identifying yourself as an ambassador you're signaling that you're a safe person to talk to...[about] how to register with the SDRC, and what kind of accommodations might be available to you," she said.

The center's mission is one Cecil-Lemkin believes in because she herself might have withdrawn from school had a chance encounter with another student not alerted her to the SDRC's existence. Accommodations arranged through the center were critical for Cecil-Lemkin's preliminary exam — a 14-hour test on her field of study she had to complete in order to officially be considered for doctoral candidacy and begin work on her dissertation.

"If I hadn't registered with SDRC and gotten accommodations for that exam, I know I wouldn't have been able to pass," she said.

It was there she discovered that little research existed on disabled students' experiences with collaborative writing, a big part of the general education curriculum at any university.

"This is problematic because rough estimates suggest that at least one in 10 students in higher education have a disability," she said. For part of her doctoral research, funded by the Phil Gates Award for Excellence in Written Communication, Cecil-Lemkin is surveying and interviewing students with disabilities about their experiences with collaborative writing.

online classes accommodate neuro-diverse students. In addition to her professionalism as a researcher, Cecil-Lemkin's ability to enjoy the moment helps make her a standout classroom leader, he said.

### *An equal chance*

When teaching college writing, Cecil-Lemkin likes to start each class by querying students on such topics as their favorite places on campus or which Hogwarts house they belong to as a way of de-stressing the environment. Neal also noted Cecil-Lemkin spends significant time with students, meeting them in their own different processing and learning styles.

FSU English and Humanities alumna Cassidy Camp was among Cecil-Lemkin's students. As someone who discloses the impact mental health disorders had on her own academic experience, Camp said she connected strongly with her instructor's research and teaching approach.

"Ellen makes her classroom accessible by making herself accessible, and Rosie's presence helps students feel comfortable asking for accommodations because they know Cecil-Lemkin understands," Camp said.

Neal commended Cecil-Lemkin's ability to patiently explain Rosie's role to those who misunderstand or ignore the "working dog" vest, helping even colleagues see the invisibility of disabilities.

While Cecil-Lemkin did well in classes where she received no accommodations, attempting to pass as nondisabled took its toll in other ways. She uses these experiences to reassure students they can succeed without compromising their wellbeing and to design classes in such a way as to not require accommodation.

"I will always build my classes so that they're accessible to a wide range of students," she said, because everyone should have an equal chance at success. <

*Leah Fleurimond graduated from FSU in December earning a bachelor's degree in English with a concentration in Editing, Writing and Media.*



*Ellen Cecil-Lemkin and her service dog, Rosie. Photo courtesy FSU Photography Services.*

### *Insight on invisibility*

As she prepares to finish her doctorate in rhetoric and composition in 2020, Cecil-Lemkin's effort to make the academic experience more accessible extends beyond her work with the center. She is also seeking to destigmatize psychiatric and "invisible" disabilities, like depression and attention deficit hyperactivity disorder, through her research.

While at Miami University in Ohio for her master's, Cecil-Lemkin fell in love with researching people through surveys, interviews and obser-

The results will hopefully lead to insight on how instructors can better support student success.

"I imagine that while these suggestions will be specifically focused on assisting disabled students, implementing them widely will mean assignments, overall, are more accessible to all students," Cecil-Lemkin said.

Her dissertation adviser, associate professor and director of the Rhetoric and Composition Program, Michael Neal, is Cecil-Lemkin's co-author for a forthcoming piece on how



# Double Vision

Statistics majors Mike and Mark Zamani are #twinning and winning

By Casey Taylor

## Mike and Mark Zamani share everything — from their DNA and intended careers to their love of running and professional boxing.

The twins have always had the same interests, so it's no surprise that they chose the same field of study. Though at first they declared separate majors — economics and finance, respectively — they are now both seniors in the statistics department at Florida State University.

"It's funny," Mike said, "I switched first, then a few weeks later Mark asked me if he should make the change too."

Among the many other things the twins have shared throughout their lives was an internship this summer at the VA Cooperative Studies Program Coordinating Center in West Haven, Connecticut. Since its founding in 1972, the CSPCC has provided statistical assistance in the design, procedure, and analysis of clinical trials occurring across multiple centers, and the center has been responsible for many recent, progressive changes in medical practices.

Obtaining the internship was considered impossible for Mike and Mark, given that in the past, the program exclusively accepted students from Yale University — an academic affiliate of the program — and never accepted any undergraduate students.

Still, the brothers couldn't pass up the opportunity to apply for an internship in their home state. They impressed interviewers with their passion for hands-on data work and professionalism, both of which were key to earning the Zamanis slots in the program.

The brothers also credit acceptance to their knowledge of SAS, a statistical software developed for advanced analytics. FSU offers a SAS Programming and Data Analysis certificate, which Mike and Mark completed in Spring 2019. However, the twins possessed little experience with R programming, a software used for statistical computing and graphics.

"It was frustrating," Mark said, "because we had this huge learning curve and R is not really taught at the undergraduate level."

"Being the only undergraduates forced us to adapt and think differently," Mike said.

Rather than feeling discouraged, the Zamanis spent the first few weeks of their internship learning everything they could about R with the support of the staff at the CSPCC, who treated Mike and Mark like credentialed employees.

Of course the pair shared the same cubicle during the internship, but they contributed to two vastly different projects.

Mike conducted a secondary analysis of a study analyzing veterans who are unable to achieve remission from Major Depressive Disorder while taking one standard selective serotonin reuptake inhibitor, or SSRI. The study analyzed whether or not prescribing either an additional antipsychotic or antidepressant would increase chances of remission.

His task was to determine why an antipsychotic drug was generating significantly better outcomes for veterans aged 65 and over. Mike drafted a full manuscript documenting his findings that will eventually be submitted to *The American Journal of Psychiatry*.

Meanwhile, Mark was working on a study related to heart failure treatment. He encountered a paper related to his work published by the Mayo Clinic in *Circulation: Arrhythmia and Electrophysiology*.

While reading, Mark discovered multiple errors in the dataset and analysis and formulated his

findings into a letter to the editor. His letter was approved for publication and the Mayo Clinic responded with an updated dataset and explanation of its analysis.

The brothers far exceeded the expectations of the program staff and the FSU statistics department, and they demonstrate a passion for hands-on work, said FSU undergraduate statistics advisor Dr. Steven Ramsier.

"We grew so much as people while learning from our mentors, [...] they've given us self-confidence; we know that we can do this," Mark said.

"It was invaluable, their contribution to our personal development," Mike continued.

Ramsier, who laughingly admits he's still not quite sure which twin is which, spoke highly of the brothers' drive. "I don't get students like them often, the kind who have a vision of where they're going and ask me how they can get there," he said.

Dr. Michael Winger, one of the brothers' mentors at the CSPCC, made it clear Yale University would fight for Mike and Mark in their pursuit of graduate school. While the experiences working at the CSPCC left a lasting impression, the Zamanis are adamant FSU is still their first choice for continuing their education.

"We're very comfortable here," Mark said, "We have a good relationship with the faculty."

While some siblings might find the idea of sharing almost everything stifling, Mike and Mark wouldn't have it any other way.

"It makes apartment hunting easy," Mark joked.

"It's nice to have someone who can relate to my problems," Mike said, "and Mark is always there — we're best friends." <

*Casey Taylor is pursuing a bachelor's degree in English with a concentration in Editing, Writing and Media, and Italian, with plans to graduate in May 2020.*



# Going global

*Gilman Scholarship affords students opportunities of a lifetime*

**By McKenzie Harris**

Florida State University students are making their mark around the globe, thanks to the esteemed Benjamin A. Gilman International Scholarship Program. The program provides students the opportunity to study or intern abroad, gaining proficiency in critically-important academic and career development skills.

Since the program's inception in 2001, the Gilman Scholarship has enabled more than 28,000 American students of various backgrounds to immerse themselves in meaningful educational experiences in new countries.

Senior Myryame Desrosiers grew up in Haiti but moved to America after the devastat-

ing 2010 earthquake. A biology major on the pre-med track, Desrosiers' Gilman Scholarship took her to Ghana, which helped her discover some of her family's history.

"Many Ghanaians were sent to Haiti during the slave trade, and I felt that I could learn about my origin. I was often told that I looked like a Ghanaian, and I picked up the language quite quickly. It was the perfect match!" Desrosiers said. "I also wanted to go to a country where the healthcare system was not as advanced as the United States to spend time learning about their systems. I hope to one day work for Doctors Beyond Borders."



From left: D'yvonier Larcheveaux, Marquita Rusley and Myryame Desrosiers in Tallahassee and during their travels through the Benjamin A. Gilman International Scholarship Program. Courtesy photos.

Desrosiers conducted research on the high pregnancy mortality rate in Ghana and possible contributing factors, including a lack of resources available to expectant mothers. She also organized a health-education workshop at a rural-area school and taught French, her native language, at a private school.

"I realized that the educational aspect of my project was my favorite. It inspired me to join Teach for America and do some work locally after graduation," Desrosiers said. "Most importantly, this trip solidified my goals of becoming an obstetrician-gynecologist after witnessing childbirth for the first time. I want to bring new life into the world; it's a precious and beautiful moment."

The Gilman Scholarship program is successful in supporting students who have been historically underrepresented in educational opportunities abroad, including first-generation, STEM, and ethnic minority students, as well as those with disabilities. Gilman winners are also drawn from students attending historically black colleges and community colleges, and students who might not otherwise take advantage of opportunities abroad due to financial constraints: Pell Grant recipients are eligible to apply for Gilman Scholarships.

FSU's Office of National Fellowships assists students in discovering scholarship programs and provides guidance during the application

process. This year, FSU saw a record number of students win a Gilman Scholarship. Of the 28 selected scholars, 10 are students in departments housed by the College of Arts and Sciences.

Jesse Wieland, assistant director of the Office of National Fellowships, said, "These students demonstrate that experiential opportunities aren't confined to the borders of Florida State University and are accessible to anyone, despite their financial circumstances."

"Being African-American, I barely see people that look like me on brochures for travel programs or hear people within my community speaking on experiences as such. I am a strong believer in providing representation, and I wanted to add to the growing number of African-Americans that study abroad," said senior psychology student D'yvonier Larcheveaux, who traveled to England with her Gilman Scholarship, studying at the FSU London Centre.

The Gilman Scholarship Program encourages students to study or intern in a diverse array of world regions. In 2019, FSU's Gilman scholars fanned out across 15 different countries.

Biochemistry major Marquita Rusley's Gilman Scholarship allowed her to travel to Ecuador where she interned with the nonprofit group Manna Project International. While improving her Spanish skills, she also taught English to students ranging from elementary school to adults. Rusley is a senior with aspirations of working in the public health sector and has just been accepted to the Peace Corps in Togo, West Africa.

"It is important to understand that you are going abroad to serve a community and learn a language, but you will also benefit, grow, and learn so many skills beyond that," she said. "Volunteering is a two-sided street that benefits the individual and the community, as long as you come in with an open mind and passion to learn." <

McKenzie Harris is pursuing a bachelor's in English with a concentration in Editing, Writing and Media, and plans to graduate in May 2020.



# The Watchers

**Michael McVicar connects the dots between religion and the surveillance state**

*By Tom Morgan*

Sept. 11, 2001 was a pivotal day for many, but for Michael McVicar, associate professor of religion at Florida State University, it was a catalyst for his academic career.

As an undergrad studying political science and history at Ohio State University, McVicar became fascinated with the idea of the surveillance state. He planned to attend graduate school to gain a better understanding of the inner workings of bureaucracies and the ways they track citizens.

But that was before the attacks. Then the terrorist group al-Qaeda coordinated hijacking of four U.S. airliners, killed nearly 3,000 people, injured more than 6,000 and caused billions in damage. Those actions fundamentally changed McVicar's questions.

## **Religious extremism**

The aftermath of 9/11 made it impossible for McVicar to ignore religion as a key factor in determining who gets surveilled.

"I doubt I would have linked religion and surveillance the way I do in my current research if not for 9/11," McVicar said.

In 2002, he started graduate school at Ohio State in comparative studies, an interdisciplinary program that allowed McVicar to tailor his doctoral degree to include religious studies, politics and history. In the wake of the attacks, the classwork exposed him to the study of religious extremism.

McVicar credits his academic adviser for helping him realize religious extremism isn't necessarily a synonym for terrorism or even violence. It can also mean small groups engaging in behavior the public may find alarming and threatening. That distinction made the question of why some groups are labeled as extremist exceptionally complex.

### *The "others"*

McVicar began examining several domestic religious groups in the U.S. to try to understand their motivations and why Americans fear what he describes as "otherness."

Some religions, or their subjects, are identified as extremist for violating established cultural norms: Among the articles McVicar has published since arriving at Florida State in 2013 was a study of serpent-handling Christians in the 20th century and how those acts were seen as extreme within the larger Pentecostal movement, which was defined by rituals of speaking in tongues and exorcisms. The American public saw the rituals and practitioners as mysterious through their portrayal in popular culture.

"McVicar's first book, 'Christian Reconstruction: R.J. Rushdoony and American Religious Conservatism,' was an important contribution to our understanding of the formation of conservative Christian movements most people describe as the 'religious right,'" said John Kelsay, distinguished research professor of religion at Florida State.

Rushdoony fought for educational reforms and opposed laws prohibiting homeschooling in

the 1960s and '70s, and his position influenced present-day religious and political conservatives. However, his views about reconstructing the government as a Christian state governed by biblical law and using capital punishment against non-believers created a rift between him and mainstream evangelicals that left him in relative obscurity before his death in 2001.

### *Domestic surveillance*

"More recently, Mike's research is focused on the role of surveillance in American life, for example, in the development of the FBI and other institutions," Kelsay said.

McVicar is researching America's historical responses to threats, real and perceived, for the forthcoming book "God's Watchers: Domestic Intelligence Gathering and Religious Activism from the Civil War to the War on Terror."

A consistent facet of U.S. intelligence gathering over the last two centuries has been to use religion to identify populations to target for surveillance, McVicar said. Otherness has a consequence in America, as religion plays a key role in national identity and defines who's in and who's out.

In the decades following World War II, former FBI Director J. Edgar Hoover believed certain Protestant clergy were susceptible to Communist influence. He regularly encouraged Americans to be watchful while his organization built and maintained meticulous files on suspects, sympathizers and anyone who reported suspicious activity.

### *Citizen watchdogs*

Hoover's warnings prompted many Christian evangelicals and fundamentalists to report other Protestants to the FBI for allegedly suspicious behavior. Some went so far as making their own lists of suspected Communists and sympathizers. According to McVicar's research, internal FBI documents from the period indicate nearly all "derogatory information" about communist infiltration came from rival church groups.

While the Red Scare is long over, citizen surveillance is still a part of American society, with much of the "spying" done by neighbors: Consider that for nearly two decades post-9/11, federal, state and local law enforcement have encouraged the public to report suspicious behavior.

### *Deep dives*

An unintended benefit of this long-term surveillance activity is those records now serve as an academic resource. Thanks to Freedom of Information Act requests, McVicar can see governmental and public viewpoints on religion evolve through what was catalogued over the decades.

"Mike's careful analyses of key conservative figures, his attentiveness to the enmeshment of religion and politics, and his current study of the central role of religious organizations in the coalescence of the surveillance state are cutting-edge contributions," said John Corrigan, FSU's Lucius Moody Bristol Distinguished Professor of Religion.

"His vanguard research and highly influential publications are a key part of the current American scholarly investigation of religion and conservatism." <

*His vanguard research and highly influential publications are a key part of the current American scholarly investigation of religion and conservatism." – John Corrigan, FSU Professor of Religion*



# *Stellar Sights*

*FSU Observatory  
gives students a  
new perspective  
on astronomy*

*By Tom Morgan*

From a terrace along Doak Campbell Stadium, Florida State University students can now get an up-close view of planets, stars and other astronomical objects that are normally too faint to see with the human eye. These awesome views are possible thanks to the new modern astronomical observatory constructed by FSU's physics department.

The FSU Observatory project is part of the larger university-wide mission to enhance students' academic experience through technology. With construction complete, the observatory is in regular use and predicted to benefit more than 1,000 students annually through the physics department alone. It has already vastly improved astronomy instruction, said Eric Hsiao, an assistant professor of astrophysics at FSU and one of the project's leads.

"Learning concepts from a textbook alone cannot match the educational benefit of a hands-on experience," Hsiao said.

### **Tremendous range**

Witnessing astronomical objects through the telescope can be truly awe-inspiring. On a moonless night, he said, observers can spot an object 10,000 times fainter than the faintest object the human eye can see.

"This capability makes a wide range of astronomical objects available to us, from stellar nurseries to sites of dying stars, and from moons in our solar system to supernovae in neighboring galaxies, tens of millions of light years away," Hsiao said.

### **Leading technology**

Making those views possible is the PlaneWave CDK17 telescope, a feat of engineering that resides within a 10-foot fiberglass dome. The most important property of a telescope is the size of its primary mirror, controlling the number of photons the telescope can collect from faint astronomical objects. The CDK17 has a large, elliptical, 17-inch diameter primary mirror, while maintaining good off-axis optical performance.

The telescope also has state-of-the-art temperature control. Because warmer air refracts light differently than cooler air, the tiniest difference in temperature over its three-meter focal length is enough to impact the telescope's sight. That change in temperature can be caused by a multitude of factors. Heat transfer from warmer parts of the instrument, drops in temperature as the sun sets, and when the telescope's top face is viewing the night sky can all be contributing factors.

### **Exceptional opportunity**

Astrophysics doctoral candidate Scott Davis helped complete the project and noted the observatory's presence affords undergraduate astronomy students the rare chance to control such equipment and propose their own observations.

"When working at a professional observatory, most of the equipment is set up for the observer and observing time is scarce. The FSU Campus Observatory gives us the ability to learn more about the inner workings of this equipment at our own pace," he said.

The project moved from conception to reality during the 2016-2017 school year, when an FSU student-faculty-staff advisory committee that recommends how to utilize the student technology fee deemed the observatory its top project. After securing funding, the physics department began investigating possible locations.

### **A perfect spot**

Doak's rooftop was selected because of its relative distance from other buildings and freestanding lights, which means it's one of the darkest spots at Florida State when the stadium lights are off. Hsiao, his colleagues and graduate students in astrophysics then spent the next year constructing the dome, installing equipment and testing the system.

The location of the telescope also opens up opportunities in the future to make this cutting-edge resource available to the wider university and Tallahassee community.

"Another one of our aims is to provide this experience to as many members of the public as possible," Hsiao said. <



Left: A view from the FSU Observatory. Above: The PlaneWave CDK17 telescope. Courtesy photos.



# *History and heritage*

Jennifer Koslow helps  
give voice to silenced,  
marginalized people

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*By Audrey Post*

Jennifer Koslow vividly remembers a fourth-grade field trip to New Jersey's Fort Lee while studying the American Revolution. The class was divided into two groups, one working inside to prepare a stew using only implements colonists used. The other — Koslow's group — had to gather wood for the fire that snowy afternoon. Then they had to march in formation.

Koslow, an associate professor of history and director of Florida State University's Historical Administration and Public History program, describes that childhood field trip as an example of effective public history.

"It was a miserable experience, but I did learn something: People must have been committed to the cause because this was not fun," she said. "It's not always about the names, dates and places. Sometimes it's about larger issues. You have to ask yourself, 'what's the message, what do you want to be the takeaway?'"

Koslow discovered her own gift for storytelling while in graduate school at UCLA, and since joining the FSU faculty in 2006, she has helped present history in ways that capture the essence of the story as well as the facts. Local leaders have recruited Koslow to help tell the stories of Tallahassee's past, particularly during the civil rights movement.

The Civil Rights Heritage Sidewalk in the Capital City's downtown now pays tribute to the courageous men and women who participated in the boycotts and sit-ins at McCrory's lunch counter on Monroe Street. McCrory's is long gone and the property is owned by the Seminole Tribe of Florida, but its place in Tallahassee history and the people who helped integrate it have been preserved in the community's collective memory.

Working in concert with citizen's groups, Koslow spent months researching where and when events happened. The terrazzo sidewalk, designed by FSU's Master Craftsman Studio, leads to where McCrory's entrance designated for use by African Americans had been.

Koslow also served on a citizens' council that worked with city-county planners on the Franklin Boulevard and Cascades Park project, to memorialize the community known as Smoky Hollow, located between the state office buildings and the railroad tracks to the east. She had already been researching the connection between public health and urban renewal, particularly in the context of the civil rights movement.

"The Department of Health used to justify urban renewal by declaring an area a brownfield or blighted, not just in Tallahassee but across the State of Florida," Koslow said. "In the 1950s and '60s, there were hundreds of people living in Smoky Hollow with a strong sense of community."

Assistant City Manager Wayne Tedder praised Koslow's contributions to the project. "That neighborhood was decimated by urban renewal in the 1970s," he said. "Having the true story of what happened meant everything."

Today, the "Spirit Houses," skeletal frames with chimneys, represent the small wooden homes

that lined the unpaved street and the smoke that hung in the air. Students in Koslow's Oral History class interviewed former residents in a joint project with the Riley House Center/ Museum. The common thread among all the stories was the sense of feeling safe and loved in their community.

"No one should have to live without plumbing, but the racism that was so rampant was the driving force," she said. "They were already disenfranchised and couldn't vote, then they were told their community was blighted and they had to move."

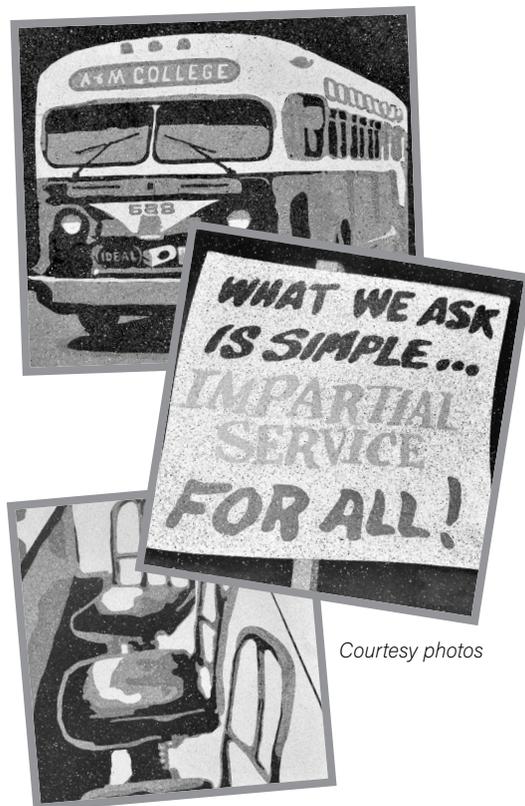
Autumn Calder coordinated the Smoky Hollow project working group when she was senior planner at Blueprint, the funding agency.

"Doctor Koslow brought experience in documenting civil rights history to the Smoky Hollow project," Calder said. "It's an emotional and difficult topic, but her expertise helped us tell the story in a sensitive and successful way."

The Smoky Hollow story is now on file at the Library of Congress as part of the Historic American Landscapes Survey. Administered by the National Park Service, the surveys typically focus on changes to a property owned by a famous person. Koslow wrote the narrative that accompanies the maps showing the changes, and it's the first time an African American property has been included.

What was the takeaway of the Smoky Hollow project? A study in contrasts between the way white people lived and black people lived, Koslow said, yet it also underscored how black parents tried to protect their children from the harsh realities of the times. It was important to the former residents that their message and memories be shared.

"Some moments I find it very depressing, seeing how power works, how racism pervades policy," she said. "Giving voice to people is incredibly gratifying as a historian." <



Courtesy photos

## Pop-up history

### *Exhibits offer slices of campus history*

Jennifer Koslow's history students create exhibits that tell the stories of various locations around campus, many of which entwine with Tallahassee's public history. "On This Spot" posters pop up for a week near the end of each semester and tell the history of a particular place.

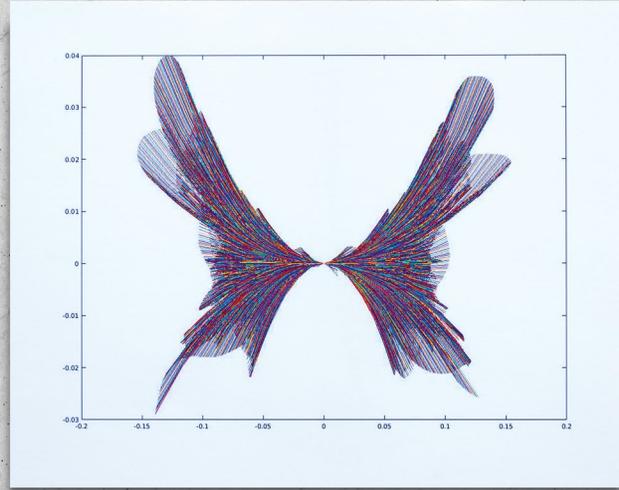
The early Unitarian Chapel, a triangular limestone building that now houses FSU Facilities offices, was one of the few spaces blacks and whites could meet together to discuss issues of race.

Lincoln Academy, which moved to Brevard Street and became Lincoln High School, was the first public high school for African-American students. Its original location is now part of the FSU campus.

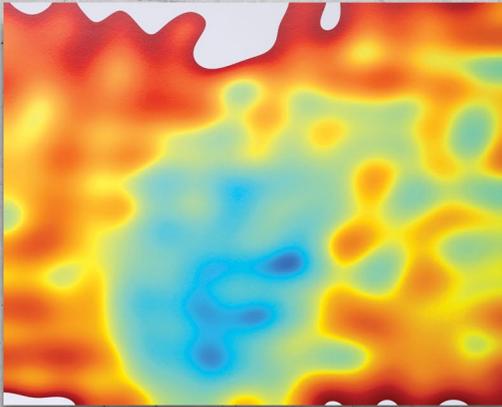
Gokila Dorai  
Legendary in  
Computer Science



Orhan Akal  
Love Birds



Jeffery Dixon  
Membrane Permeation  
of Hydrogen Sulfide



Pamela Quiroz Knoll  
Fenghuang Phoenix

# the *art* of science

By Amy Robinson

## The images shared by Florida State University's Hanson Research Group on Twitter look more like installments in a neon art exhibit than snapshots from a chemistry laboratory.

The group's weekly "#FluorescenceFriday" photos of glowing chemicals and lasers are dazzling enough to make social media followers stop mid-scroll, to stare in wonder at the captivating technicolor curiosities.

So, what exactly are these colorful creations captured on camera? And what is the science behind them?

Researchers with the Hanson Research Group at FSU's Department of Chemistry and Biochemistry are studying photochemistry and photophysics, examining molecules and materials that absorb and emit light.

Associate professor Kenneth Hanson, principal investigator for the group, said the goal is to understand and optimize the performance of these molecules for various applications, including solar energy conversion, sensing and catalysis. Researchers study how the atomic and molecular composition of matter influences the speed and efficiency of light-initiated events, such as electron and energy transfer.

"For more than 60 years, FSU chemistry has been at the forefront of investigating light-matter interaction," Hanson said. "From the early work of Michael Kasha and Jack Saltiel, through to today, photochemistry has been a crucial part of the department and it is known as one of our strengths nationally and internationally."

Approximately half of the FSU chemistry faculty studies light-driven processes. The department

also hosts a summer program through the National Science Foundation's Research Experiences for Undergraduates umbrella, the NSF-REU: Sunshine Institute, which provides undergraduate students from around the country the opportunity to study light-matter interactions with FSU chemistry faculty. Additionally, in the last five years, the department has acquired over \$1 million in new equipment to measure and monitor these events.

"Through shared research efforts, we continue to lead in the study of light-matter interactions," Hanson said.

Whether you are a chemistry buff or someone who shudders at the mere mention of the periodic table, it's difficult not to be awed by the chemistry department's photography.

"Some of the most striking pictures we take are of relatively mundane science," Hanson

said. "For example, if you photograph crystalline sodium chloride, also known as table salt, from the right angle with the right lighting, it looks amazing."

Hanson said the students are very involved in the photography process, contributing the vast majority of the photos on the group's social media pages. After launching a Twitter account in 2013, the Hanson Research Group also began submitting photographs to the Chemical and Engineering News Chemistry in Pictures competition, and has, since then, won several Photo of the Month awards and even the 2014 Chemistry Photo of the Year award. The latter came with a new Canon DSLR camera and a feature in an issue of C&EN. Some of the photos have also been printed by the National Science Foundation, Chemistry World Magazine, and numerous news outlets.

*Left: Artwork from the 2019 Art in STEM exhibition at Dirac Science Library. Below: Kenneth Hanson.*





*“In the science world, it’s sometimes difficult to get the general public interested in various areas of research. Art has proven to be an amazing medium for that.” – Zeljka Popovic*

*Zeljka Popovic*

Hanson himself was so intrigued by the pictures, he decided to make a special place for them in his home, covering a wall with 8-by-11 inch metal prints curated and arranged by his wife, Debbie, a project administrator for the University of Southern California’s Center for Urban Education. The idea of an art wall started about three years ago, as Hanson’s first group of students was approaching graduation.

“I really wanted a way to commemorate them and their work,” Hanson said. “Since the images are so integral to who we are, we decided it would be really cool to start printing them off”

Hanson also has his students sign the prints and note their anticipated graduation date. Word of the photo wall spread like wildfire and Hanson admits there may now be a little friendly competition over whose photos are chosen for printing.

“They’re excited when they get one of their photos added to the wall,” Hanson said with a laugh. “We do a group gathering at my house a few times per year so they get to see when the wall is updated and they sign the back of their print while they’re there. They don’t necessarily know if their photo is on the wall until they show up. It’s a bit of a surprise for them.”

Sharing the images on social media is a way of taking the Hanson group’s passion project a step further, engaging with the global science community and the public at large.

“The response to our early images was overwhelmingly positive, and we are happy to continue to share beautiful science photos with people who would like to see them,” Hanson said.

### ***Under the sea***

Other departments at FSU are also embracing the artistic side of science. Mike Stukel is an

associate professor at the Department of Earth, Ocean and Atmospheric Science and the mastermind behind the FSU Zooplankton Ecology and Biochemistry Lab. The lab shares stunning, high-resolution photos of zooplankton that are as breathtaking as they are bizarre.

“My wife, Meagan Helman, teaches photography in FSU’s School of Dance,” Stukel said. “With her help, I’ve spent several years developing an approach for getting good photos of live zooplankton.”

To capture the photos, Stukel’s team conducts careful net collections during research expeditions to collect healthy organisms. Researchers then sort through the samples, select organisms they are interested in highlighting and gently transfer them into specially designed, acrylic photography chambers. There, Stukel delicately illuminates the organisms as they swim, capturing unbelievable photos that mimic how zooplankton appear in their natural environment.

Stukel said the motive for the photography — and the lab’s unofficial motto — is simple: spreading the joy of plankton.

### *Bridging the gap*

Zeljka Popovic is a graduate research assistant and president of Graduate Women in Science at FSU, a student organization that aims to provide a supportive community for women in STEM graduate programs. Every spring semester, with assistance from the FSU Graduate School, the organization hosts the Art in STEM event at Dirac Science Library on campus.

“The event helps us directly connect what people are doing in the lab to a fun event,” Popovic said. “They can display their work in a way that they normally wouldn’t get the chance to. This also exposes the general public to a ‘softer’ side of science, one that everyone can appreciate, even if they have no idea what the research is about.”

Organizers hope the event helps bridge the gap between scientific discovery and popular interest.

“In the science world, it’s sometimes difficult to get the general public interested in various areas of research,” Popovic said. “Art has proven to be an amazing medium for that.” <



Mike Stukel



Mike Stukel



Mike Stukel

*Above: Photos courtesy Mike Stukel.*



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*Photo by William Lineberry*



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