



RESEARCH

BOARD OF TRUSTEES REPORT
JULY 2023



▶ From the Vice President for Research

Dear Trustees,

I hope you all are doing well and enjoying the summer.

We are wrapping up another successful fiscal year for our research enterprise. As I have reported, Clemson has earned numerous high-value, capacity-building research awards this year, including our first Energy Frontier Research Center from the DOE (\$10M), a national transportation center from DOT (\$20M), a phase 2 renewal of our EPIC COBRE (\$11M), and the largest grant funded by a single agency in our history – the \$70 million Climate-Smart Commodities project from USDA.

And now, we have earned a \$20 million National Science Foundation EPSCOR project to develop medical devices using artificial intelligence to improve health care and delivery. Clemson will lead a team of 11 universities, and in fact, this is the first NSF EPSCoR Track-1 award that Clemson has had the honor to lead, so it is quite in honor and a reflection of the trust NSF has in our ability to lead and innovate. You can read more on this project on [pages 16-17](#).

This is the latest in a string of large awards granted to Clemson. Through May of FY2023, Clemson researchers have secured 21 research projects valued at \$2 million or more, for a total of \$180 million in funding to Clemson. Since 2015, Clemson faculty have received 97 such projects for a total of \$560 million.

This is fueling a historic year for competitive research awards. Through May FY2023, we have received \$242 million in research awards, an all-time high in Clemson history. This is a remarkable achievement for our faculty.

And, importantly, as our research enterprise has grown, we have opened more doors for our students:

- Two recent Clemson graduating seniors and two alumni have been awarded prestigious Fulbright Scholarships ([page 22](#)).
- A Clemson business student participated in the inaugural Reagan Institute Civic Leaders Fellowship ([page 24](#)).
- Four Honors College students received the 2023 Barry M. Goldwater Scholarship, the most prestigious and highly competitive national award for sophomore and junior students with the potential to advance research in mathematics, natural sciences and engineering ([pages 24-25](#)).
- And seven graduating Clemson University seniors and two recent alumnae are receiving three years of financial support toward their graduate degrees through highly competitive Graduate Research Fellowships provided by the National Science Foundation ([pages 26-27](#)).

Faculty are also earning significant accolades for their work. A Clemson professor made history as the first African American woman inducted as a Fellow of the Academy of Leisure Sciences ([page 21](#)). Another professor earned the Earth Caretaker Award recognizing his more than 50 years of dedication to environmental sustainability ([page 25](#)). Several faculty earned prestigious fellowships, and one research assistant professor was one of just six individuals chosen to participate in the National Science Foundation's 2023 Trusted Cyberinfrastructure (CI) Open Science Cybersecurity Fellows program. These stories and more are listed in our Research News section from [pages 21-31](#).



Tanju Karanfil

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From the Vice President for Research

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Six Clemson faculty have earned NSF CAREER Awards and two CAREER proposals are still pending. Additionally, one Clemson faculty member has earned the Young Investigator Research Program Award from the Air Force Office of Scientific Research, and for the first time, a Clemson faculty member has earned a prestigious Beckman Young Investigator Award ([page 33](#)).

I have also included brief profiles of one faculty member from each college to give you an idea of the breadth of research and scholarship happening at Clemson ([pages 32-41](#)).

We have much to celebrate, and we concluded our semester by recognizing the outstanding work of our faculty during the annual Research Symposium. A faculty member working to modernize automotive manufacturing and vehicle design and a plant breeder helping to improve agricultural productivity were named Clemson University Researchers of the Year ([pages 18-19](#)). Additionally, six Clemson faculty earned University Research, Scholarship and Artistic Achievement Awards ([page 20](#)).

We are fortunate to have a great faculty body that has helped us grow our research exponentially in recent years. Now, we get to work to elevate Clemson even further.

I am excited to see what the future holds.

Go Tigers!

Respectfully submitted,



Tanju Karanfil, Ph.D., PE, BCEE, IWA Fellow
Vice President for Research, Clemson University

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RESEARCH

RESEARCH METRICS

This section covers institutional research productivity with data on proposal submissions, awards and expenditures.

Executive Summary

- Clemson reported total R&D expenditures of \$263 million for 2022 to the National Science Foundation Higher Education Research and Development (HERD) Survey. This is an increase of 11 percent from 2021 and marks the first time Clemson has surpassed \$250 million ([page 5](#)). The survey report is under review and total R&D expenditures for all universities will be published by NSF in the fall.
- Competitive expenditures, which include funds only from competitively bid projects, were up 11 percent at \$106 million through the third quarter of fiscal year 2023, compared to the same quarter the prior fiscal year ([page 6](#)).
- Through the third quarter of FY2023, proposal submissions remained strong at \$643 million, up 22 percent from the prior-year quarter ([page 7](#)).
- Research awards reached \$242 million at the end of May FY2023, continuing the strong momentum in competitive awards received ([page 8](#)).
- A list of the top 10 awards received during the third quarter is included on [pages 9-10](#).
- The research report card provides additional information, including research metrics per college, innovation cluster and business unit ([pages 11-14](#)).

Total R&D Expenditures

Clemson has officially posted its Total R&D Expenditures for 2022 to the National Science Foundation Higher Education Research and Development (HERD) Survey.

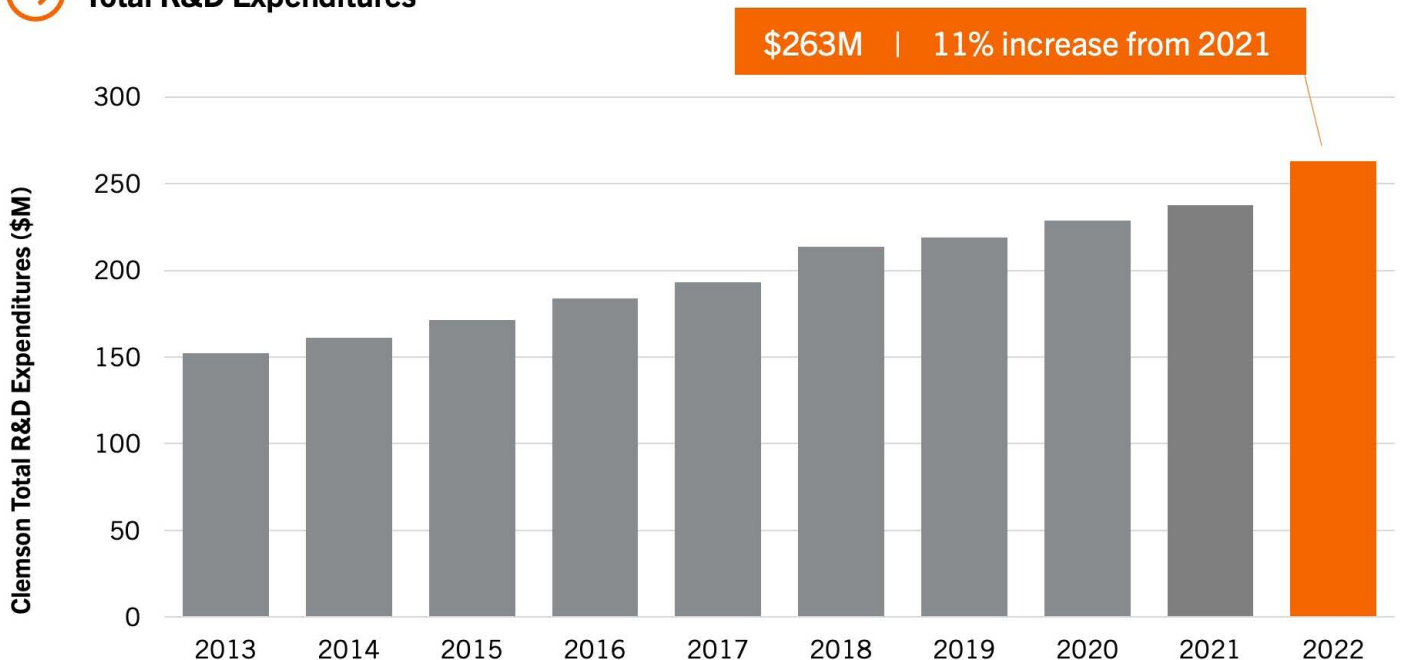
Clemson's total R&D expenditures continued to increase in 2022 to \$263 million, as shown in the chart below. This data includes expenditures on all research revenue, including state support, gifts, external research services, competitive awards, and other sources.

The HERD Survey is the primary source of information on research and development expenditures at U.S. colleges and universities. The survey collects information on R&D expenditures by field of research and source of funds and also gathers information on types of research, expenses, and headcounts of R&D personnel.

Total R&D expenditures from the HERD Survey are used in the Carnegie Classification and allow for an apples-to-apples comparison of research expenditures at peer Carnegie R1 institutions. The 2022 survey report is under review and total R&D expenditures for all universities will be published by NSF in the fall.



Total R&D Expenditures



SOURCE: NSF Higher Education Research and Development (HERD) Survey

Competitive Expenditures

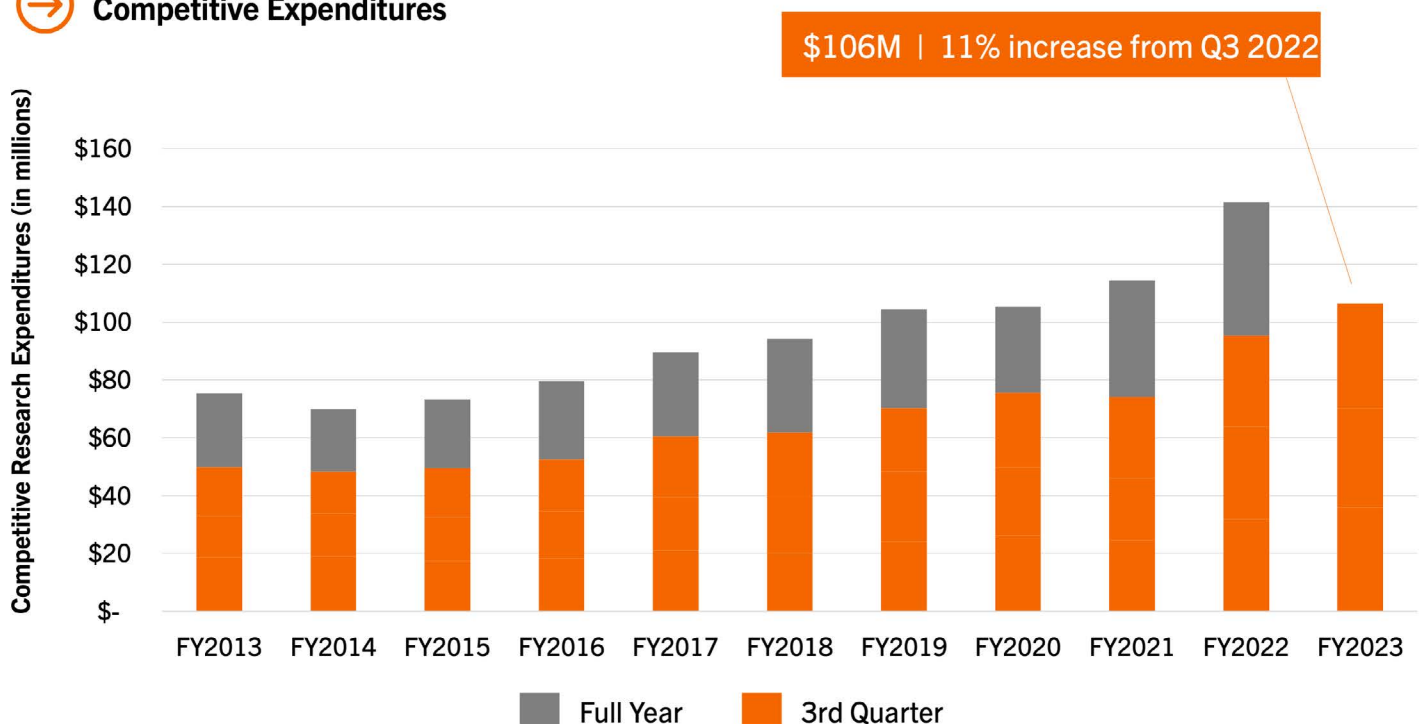
Competitive expenditures were \$106 million through the third quarter of FY2023, an increase of 11 percent from FY2022, which was a banner year.

Competitive expenditures include funds only from competitively bid projects, such as highly competitive federal grant awards. Competitive expenditures have increased greatly at Clemson over the past decade, reaching a high point of \$141 million in FY2022. This is attributed to the high-quality proposals submitted by faculty, as gains in expenditures have greatly outpaced increases in the size of the faculty body.

Additional details on expenditures by business unit, innovation cluster and funding source are included in the Research Report Card on [page 13](#).



Competitive Expenditures



Proposal Submissions

Proposal submissions have increased consistently over the past five years as Clemson faculty seek funding for scholarship and discovery. FY2022 saw submissions spike to \$896 million, an increase of nearly 18% from the prior year and more than 132% from FY2013.

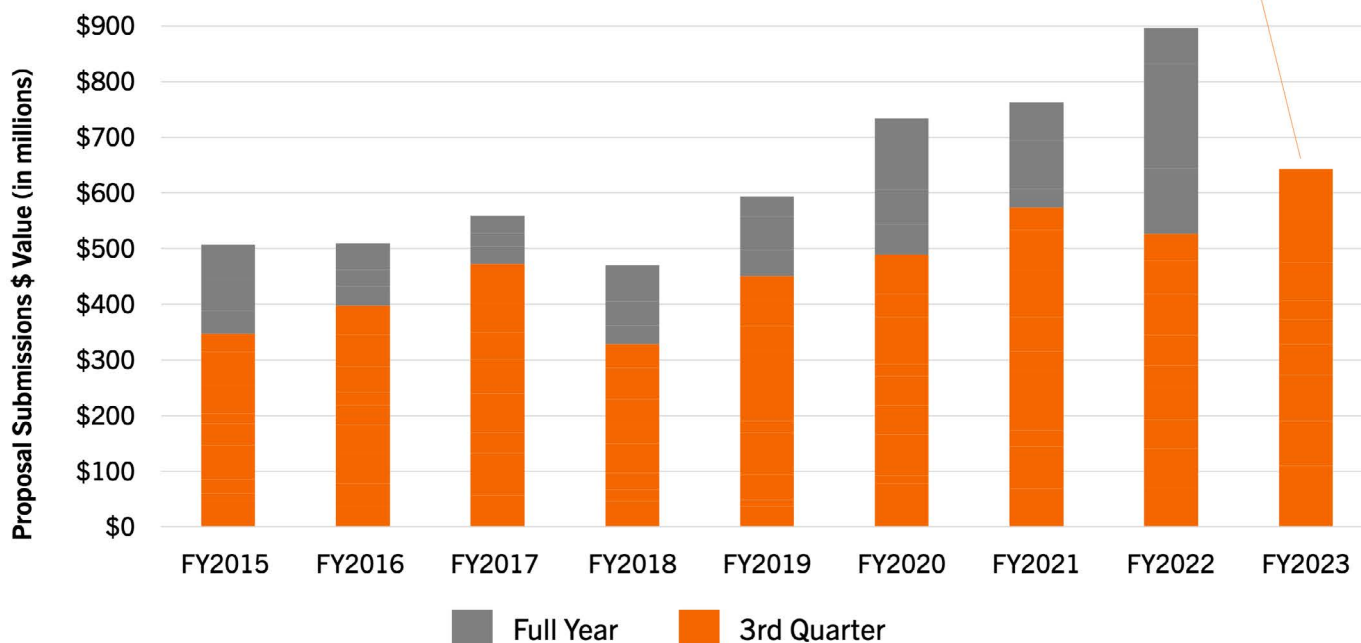
Through the third quarter of FY2023, proposal submissions continued on an upward projectory at \$643 million, up 22 percent from the first three quarters of the prior year.

Additional details on the number and value of proposal submissions for each college are included in the Research Report Card on [page 11](#).



Proposal Submissions

\$643M | 22% increase from Q3 2022



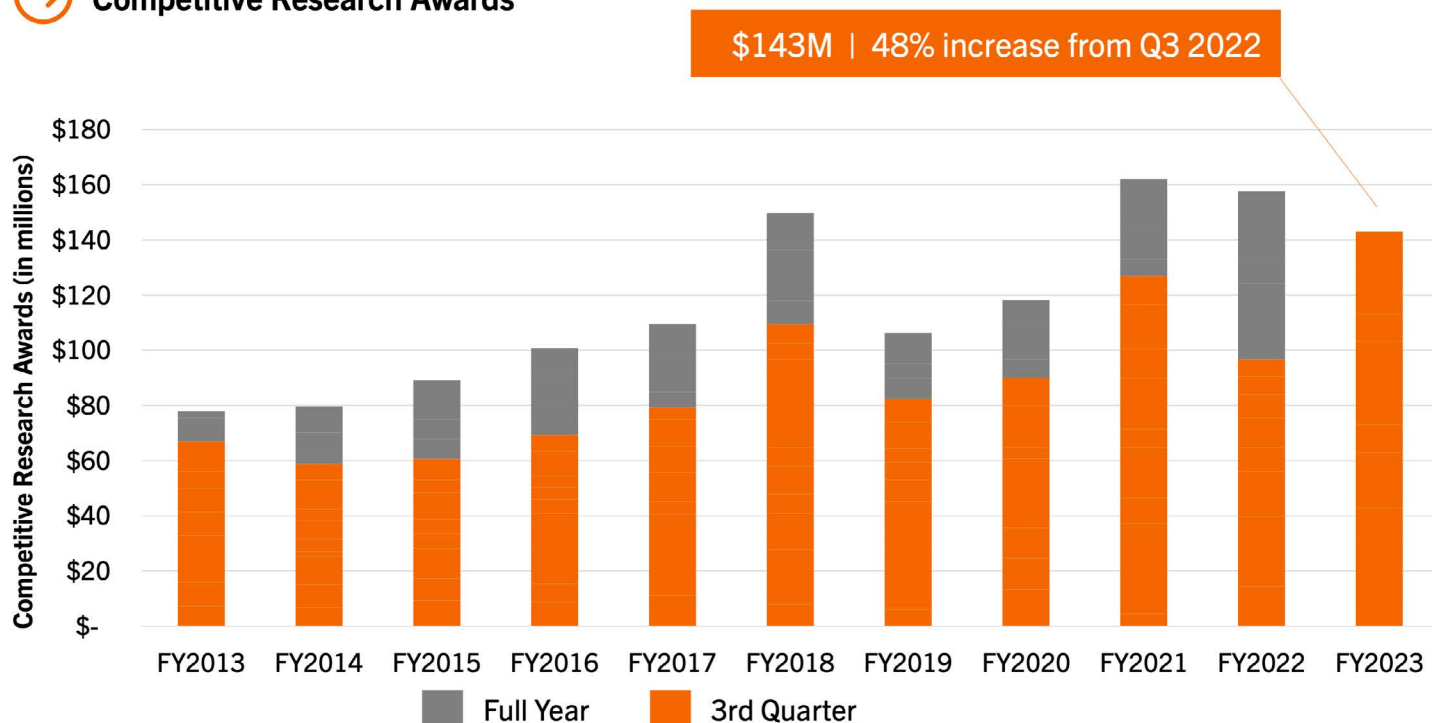
Competitive Research Awards

Clemson faculty continue to successfully earn competitive research awards. While the chart below shows awards through the third quarter ended March 31, awards through May FY2023 reached a Clemson-record \$242 million. Year-end FY2023 numbers will be reported in October.

In particular, Clemson faculty are earning higher value awards of \$2 million and more, as shown in the graphic at the bottom of the page. This is fueling an ongoing upward trajectory in research awards received, as shown in the chart below.

Additional details on awards per college are included in the Research Report Card on [page 12](#).

→ Competitive Research Awards



Earning High-Dollar Awards

97 RESEARCH AWARDS OF AT LEAST \$2M WON SINCE 2015

THE TOTAL VALUE OF THESE PROJECTS IS **\$560 MILLION**

Top Competitive Awards (third quarter FY2023)



Karthikeyan

Raghupathy Karthikeyan, Charles Carter Newman Endowed Chair Professor of Natural Resources Engineering, received \$10 million from the U.S. Department of Agriculture to study development of a controlled environment agriculture (CEA) platform for growing salt-tolerant crops – mustard greens, cucumbers and tomatoes – using saline water for irrigation. This research could provide a solution for the limited amount of freshwater available for agricultural production. CEA covers a variety of systems, including greenhouses and modular containers, that take a technology-based approach to farming.

Amanda Rumsey, assistant professor of education and human development, received \$5.8 million from the U.S. Department of Education for an effort to increase the number of school counselors at K-12 schools. Rumsey will work with Greenville County Schools to identify and educate employees who seek to become school counselors. School districts strive to keep the ratio of students to counselors to a manageable number, as a high ratio leads to overburdened counselors and teachers pulled away from teaching to address more mental health and behavioral needs.



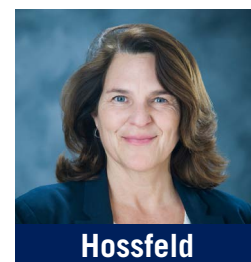
Rumsey



Whitworth

Brooke Whitworth, associate professor in the Department of Teaching and Learning, received \$2.9 million from the National Science Foundation to develop a science leader academy to train K-12 science teachers in rural South Carolina. Researchers will focus the first two years on honing the teachers' approach to science teaching, including coaching support, in-person learning and online professional development modules. The final three years will focus on developing the teachers as leaders who can create schoolwide or districtwide plans for science teaching. The project will focus on rural schools with high rates of teacher turnover.

Leslie Hossfeld, dean of the College of Behavioral, Social and Health Sciences, received \$1.8 million from the S.C. Department of Health and Human Services to support Clemson Rural Health. Clemson Rural Health is the organizing framework for Clemson's health service delivery and prevention efforts statewide - with locations including the Clemson Health Clinic at Walhalla, Clemson Health Clinic at Orangeburg, Joseph F. Sullivan Center, Clemson Rural Health Support Office at Abbeville and a fleet of Clemson Rural Health mobile health units.



Hossfeld



Khanal

Puskar Khanal, assistant professor of forestry and environmental conservation, received \$1.5 million from the U.S. Department of Agriculture to develop programming to train natural resources professionals and Extension educators to assist in advising and implementing climate-smart forestry practices. Climate-smart forestry is a holistic management strategy that aims to reduce carbon emissions, increase forest resilience to climate change, and support forestry productivity. Khanal's project will support the Southeast's \$230 billion forestry industry, which faces increased vulnerability from climate change and other stressors.

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Top Competitive Awards (third quarter FY2023)

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Price

Samantha Price, assistant professor of biological sciences, received a \$1.3 million National Science Foundation CAREER Award to advance her research on the repeating themes and general principles governing the evolution of biodiversity. In particular, Price plans to increase research opportunities for underrepresented students through the creation of the Classroom-based Undergraduate Research Experience (CURE) lab. The CURE lab will increase the number of students experiencing research in the Department of Biological Sciences by 50 percent, with at least 250 students participating over five years.

Jacob Sorber, associate professor in the School of Computing, received \$1 million from the National Science Foundation for a project titled, “Building a Batteryless Computing Community through Access to Education, Testbeds, and Tools.” Sorber’s research aims to make embedded systems, mobile sensors, wearables, and other small computational technologies smaller, more efficient, lower cost, longer-lasting and easier to deploy.



Sorber



Konkel

Miriam Konkol, assistant professor of genetics and biochemistry, received \$822,736 from the National Science Foundation to study the role of extracellular RNA in intercellular and interkingdom communication. All cellular organisms secrete RNAs. The functions of these exRNAs, however, are poorly understood. The project aims to enhance the ability to predict and manipulate plant, pest, and human-microbiome interactions, opening the door to future research on and practical exploitation of interkingdom cellular communication.

Matthew Koski, assistant professor of biological sciences, received an \$819,230 National Science Foundation CAREER Award for his study of the ecological and evolutionary processes that generate color diversity in flowering plants. As part of his CAREER project, Koski will mentor at least 10 undergraduates from Clemson’s biological sciences and education programs through two newly formed Creative Inquiry (CI) courses. One group will use plots established in the Clemson Experimental Forest to conduct research and outreach with 4-H Junior Naturalists (K-12 students). The other student group will manage a Citizen Science project fueled by members of native-plant societies in seven states.



Koski



Peng

Fei Peng, associate professor of materials science and engineering, received \$800,000 from the U.S. Department of Energy to design laser-manufactured protective coatings for ceramic matrix composites used on next-generation hydrogen turbines. These protective coatings are needed to overcome the challenges of high temperatures (3,000 degrees Fahrenheit) and harsh environments in a hydrogen-fueled turbine.

Research Report Card (FY2023 Third Quarter)

INDEX

CAAH: College of Architecture, Arts & Humanities

CAFLS: College of Agriculture, Forestry & Life Sciences

CBSHS: College of Behavioral, Social & Health Sciences

CECAS: College of Engineering, Computing & Applied Sciences

COE: College of Education

COB: College of Business

COS: College of Science

PSA: Public Service & Agriculture

		2018	2019	2020	2021	2022	2023 Third Quarter	
a. Proposal Submissions by Number		1,451	1,417	1,729	1,583	1,492	1,191	
1	CAAH	64	69	76	61	35	21	
2	CAFLS	229	377	473	401	366	299	
3	CBSHS	101	105	143	151	151	129	
4	CECAS	587	562	672	596	631	457	
5	COE	37	39	42	37	43	37	
6	COB	10	5	11	14	9	11	
7	COS	227	186	219	229	193	188	
8	PSA	163	33	37	26	26	31	
9	VP for Res & Interdisc Inst	12	25	29	29	23	11	
10	All Other	20	15	26	39	15	7	
b. Proposal Submissions by Dollar Value (in millions)		\$470M	\$594M	\$734M	\$762.4M	\$896M	\$643M	FY2023 Targets
11	CAAH	\$5.7	\$4.4	\$5.9	\$5.6	\$8.3	\$10.3	\$9.0M
12	CAFLS	\$37.1	\$68.4	\$92.9	\$84.1	\$242.1	\$93.1	\$90.0M
13	CBSHS	\$25.9	\$87.5	\$41.1	\$64.3	\$73.1	\$68.4	\$75.0M
14	CECAS	\$235.5	\$255.3	\$405.9	\$342.9	\$380.8	\$283.2	\$390.0M
15	COE	\$19.1	\$10.1	\$18.9	\$22.4	\$32.3	\$30.8	\$26.3M
16	COB	\$1.8	\$2.1	\$2.9	\$4.2	\$4.8	\$6.1	\$5.6M
17	COS	\$100.4	\$73.8	\$129.3	\$175.4	\$127.3	\$124.7	\$142.5M
18	PSA	\$25.8	\$11.4	\$6.4	\$5.6	\$7.8	\$12.6	\$11.3M
19	VP for Res & Interdisc Inst	\$12.7	\$68.5	\$19.8	\$22.3	\$11.0	\$6.1	
20	All Other	\$5.0	\$7.4	\$7.7	\$35.7	\$8.3	\$7.7	

Research Report Card (FY2023 Third Quarter)

		2018	2019	2020	2021	2022	2023 Third Quarter
c. Research Awards (in millions)		\$149.8M	\$106.3M	\$118.3M	\$162.2M	\$157.6M	\$143.0M
21	CAAH	\$1.9	\$2.0	\$1.4	\$1.4	\$1.3	\$4.4
22	CAFLS	\$13.9	\$14.2	\$22.3	\$24.2	\$19.9	\$19.4
23	CBSHS	\$8.1	\$5.9	\$7.7	\$17.4	\$13.7	\$11.1
24	CECAS	\$80.8	\$50.4	\$48.0	\$75.0	\$76.4	\$69.2
25	COE	\$4.5	\$3.3	\$2.3	\$5.1	\$5.7	\$4.8
26	COB	\$1.1	\$0.8	\$1.2	\$0.2	\$0.9	\$1.1
27	COS	\$14.7	\$18.7	\$14.2	\$25.4	\$17.8	\$16.5
28	PSA	\$6.6	\$4.0	\$4.1	\$5.8	\$6.9	\$8.7
29	VP for Res & Interdisc Inst	\$15.1	\$6.2	\$14.6	\$5.1	\$6.6	\$5.5
30	All Other	\$1.7	\$0.7	\$2.2	\$1.9	\$8.2	\$2.4
d. National Young Investigator Awards		8	6	10	10	1	9
31	NSF CAREER Awards	7	4	6	9	1	6 (2 pending)
32	NIH KO1	1	-	1	-	-	-
33	Air Force Young Investigator Awards	-	1	-	-	-	1
34	Army Young Investigator Awards	-	-	1	-	-	-
35	DARPA Young Investigators Awards	-	-	1	-	-	-
36	EPA Early Career Awards	-	1	-	-	-	-
37	DOE Early Career Awards	-	-	-	1	-	-
38	Arnold & Mabel Beckman Foundation Awards	-	-	-	-	-	1
39	Dept. of Ed. Inst. of Educational Sciences	-	-	1	-	-	-
e. Supporting Workforce							
40	Graduate Student Enrollment	4,985	5,282	5,627	5,538	5,448	6,404
41	Sponsored Graduate Research Assistants	761	558	637	546	729	794
42	Postdoctoral Fellows	97	98	98	106	117	112
43	Research Faculty: Permanent 100% Non-E&G Funded	14	11	18	12	2	5
44	Research Faculty: Temporary 100% Non-E&G Funded	27	29	54	45	32	28

Research Report Card (FY2023 Third Quarter)

		2018	2019	2020	2021	2022	2023 Third Quarter
f. Sponsored Research Expenditures by Business Unit (in millions)		\$94.2M	\$104.5M	\$105.3M	\$114.4M	\$141.4M	\$106.4M
45	CAAH	\$1.4	\$1.7	\$1.6	\$1.1	\$1.3	\$1.0
46	CAFLS	\$11.0	\$14.1	\$16.4	\$15.0	\$17.8	\$12.8
47	COB	\$0.8	\$0.8	\$0.7	\$0.7	\$0.7	\$0.6
48	CECAS	\$45.1	\$50.3	\$46.4	\$54.4	\$71.7	\$51.9
49	CBSHS	\$4.9	\$5.3	\$6.7	\$9.0	\$12.0	\$10.8
50	COE	\$2.2	\$2.5	\$2.4	\$2.3	\$3.8	\$3.5
51	COS	\$16.7	\$17.2	\$17.3	\$15.9	\$18.5	\$15.0
52	PSA	\$5.9	\$3.7	\$3.9	\$5.5	\$7.2	\$6.6
53	VP for Res & Interdisc Inst	\$3.9	\$7.1	\$9.5	\$9.6	\$7.0	\$4.5
54	All Other	\$1.6	\$1.5	\$0.4	\$0.7	\$1.1	\$1.1
g. Sponsored Research Expenditures by Innovation Cluster (in millions)		\$94.2M	\$104.5M	\$105.3M	\$114.4M	\$141.4M	\$106.4M
55	Advanced Materials	\$12.1	\$15.4	\$13.5	\$14.3	\$18.6	\$13.9
56	Cyberinfrastructure & Big Data Science	\$9.6	\$6.9	\$4.4	\$5.5	\$8.2	\$5.0
57	Energy, Trans. & Advanced Manufacturing	\$16.8	\$17.1	\$14.5	\$19.9	\$27.7	\$21.3
58	Health Innovation	\$17.8	\$23.8	\$27.1	\$27.1	\$26.3	\$20.4
59	Human Resilience	\$8.6	\$9.0	\$9.7	\$12.7	\$14.8	\$12.3
60	Sustainable Environments	\$19.5	\$20.6	\$23.9	\$21.3	\$26.8	\$21.6
61	Other	\$9.6	\$11.7	\$12.1	\$13.6	\$19.6	\$13.5
h. Sponsored Research Expenditures by Funding Source (in millions)		\$94.2M	\$104.5M	\$105.3M	\$114.4M	\$141.4M	\$106.4M
62	Federal Government	\$78.2	\$85.1	\$85.2	\$95.1	\$125.1	\$94.2
63	Foundations, Societies, and Associations	\$5.1	\$7.4	\$6.9	\$6.2	\$4.6	\$3.4
64	Industry/Other	\$6.3	\$5.3	\$5.5	\$4.8	\$4.8	\$4.3
65	International	\$0.4	\$0.3	\$0.3	\$0.4	\$0.5	\$0.3
66	Local Government	\$0.5	\$0.5	\$0.5	\$0.8	\$0.9	\$0.6
67	State Government	\$3.7	\$5.7	\$6.8	\$7.3	\$6.2	\$5.1

Research Report Card (FY2023 Third Quarter)

		2018	2019	2020	2021	2022	2023 Third Quarter
i. Sponsored Research Expenditures per T/TT Faculty by College							
68	CAAH	\$8,945	\$10,159	\$10,003	\$6,912	\$8,266	\$6,255
69	CAFLS	\$103,814	\$134,555	\$137,438	\$131,195	\$139,844	\$99,995
70	COB	\$8,269	\$8,200	\$6,991	\$7,132	\$6,787	\$5,883
71	CECAS	\$214,280	\$225,620	\$201,553	\$223,843	\$296,203	\$211,752
72	CBSHS	\$39,532	\$40,301	\$50,495	\$67,202	\$90,220	\$78,665
73	COE	\$40,197	\$47,371	\$47,742	\$48,805	\$80,058	\$76,910
74	COS	\$110,206	\$118,600	\$116,020	\$107,258	\$120,778	\$95,176
75	Clemson Average	\$103,706	\$99,125	\$96,497	\$103,187	\$142,129	\$106,102
j. Additional information							
76	NIH R01-Equivalent Awards (by start date)	3	6	1	3	1	4
77	Doctorates Awarded	234	301	249	225	242	285
78	STEM Doctorates Awarded	171	174	162	159	172	190
79	Disclosures	51	62	68	44	50	45
80	Patents	11	18	12	15	9	7
81	Licenses/Options	11	19	13	13	27	9
82	Licensing Revenue	\$461,755	\$398,136	\$315,578	\$239,074	\$380,286	\$222,523
83	Start-up Companies (based on licenses/options)	3	5	1	1	4	3



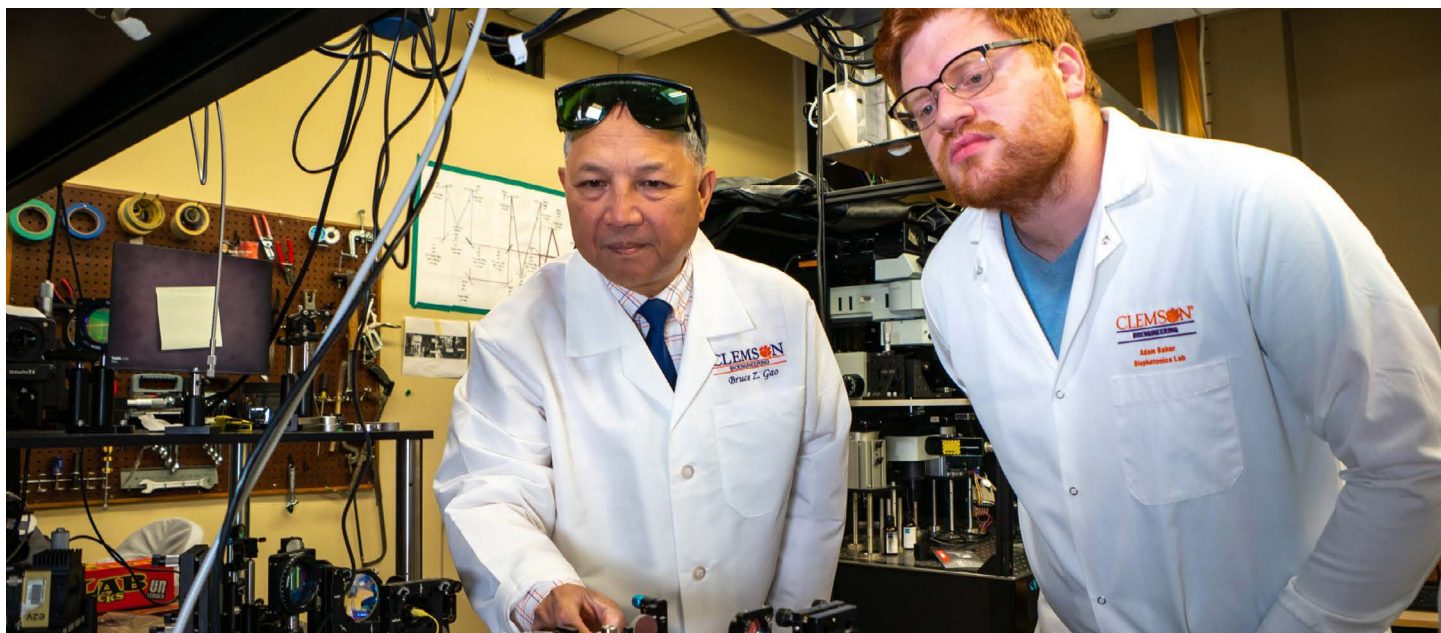
RESEARCH

RESEARCH NEWS

This section highlights research news from across the university.

Executive Summary

- Clemson will lead a \$20 million National Science Foundation EPSCoR project to develop medical devices that utilize artificial intelligence to improve health care diagnostics and treatment ([pages 16-17](#)).
- A faculty member working to modernize automotive manufacturing and vehicle design and a plant breeder helping to improve agricultural productivity were named Clemson University Researchers of the Year ([pages 18-19](#)).
- Six Clemson faculty earned University Research, Scholarship and Artistic Achievement Awards ([page 20](#)).
- A Clemson professor became the first African American woman inducted as a Fellow of the Academy of Leisure Sciences ([page 21](#)).
- Seven graduating Clemson University seniors and two recent alumnae are receiving three years of financial support toward their graduate degrees through Graduate Research Fellowships provided by the National Science Foundation ([pages 26-27](#)).
- Clemson faculty and students have received numerous accolades, which are included on [pages 21-31](#).



\$20 million NSF investment will change health care with the use of AI

A Clemson-led coalition of South Carolina researchers has formed to modernize health care diagnostics and treatment in South Carolina with the use of AI.

The National Science Foundation announced a \$20 million, five-year investment in a multi-institutional project called Artificial Intelligence-Enabled Devices for the Advancement of Personalized and Transformative Health Care in South Carolina or ADAPT-SC. Funding comes from the National Science Foundation's Established Program to Stimulate Competitive Research (NSF EPSCoR) Research Infrastructure Improvement Track-1 Award, which bolsters their overall goal to improve the research and development competitiveness of researchers and institutions within EPSCoR jurisdictions.

Clemson University will lead a statewide team of researchers from 11 institutions who will work closely with industry to advance AI-enabled medical devices and to train an AI-ready workforce.

Collaborators include the University of South Carolina, the Medical University of South Carolina, Benedict College, Claflin University, South Carolina State University, College of Charleston, Francis Marion University, The Citadel, Winthrop University and Tri-County Technical College. To advance translational research, ADAPT also will work with SC Bio, a statewide economic development organization and life-sciences industry association with nearly 200 members.

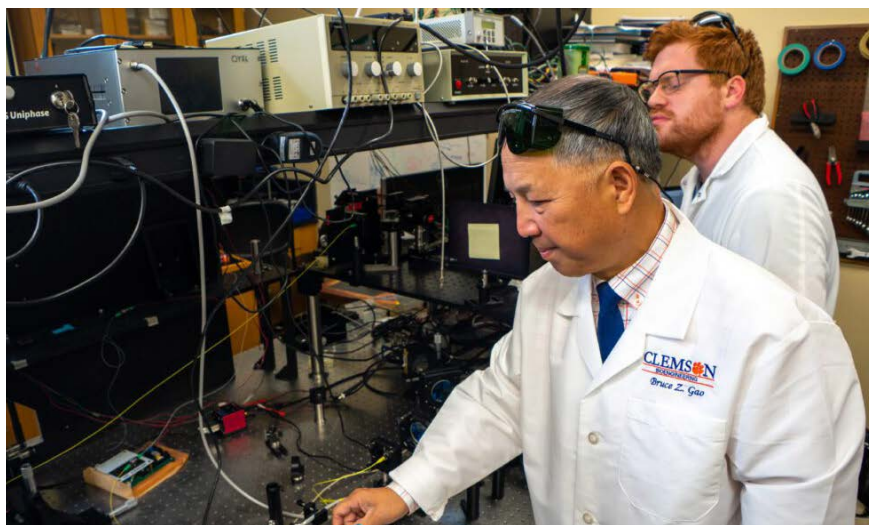
“ Translational research and economic development will be the cornerstones of ADAPT-SC. With an exceptional network of collaborators, ADAPT-SC is well-positioned to reach all areas of South Carolina with life-saving health care technologies and a skilled workforce for the future.



Jim Clements
Clemson University President

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Bruce Gao, S.C. SmartState Endowed Chair of biofabrication engineering at Clemson, will serve as scientific lead of the project.

projects include incorporating AI into diagnostic devices to illuminate some of the hidden underlying causes of cardiovascular disease, accurately detect wounds in intensive care units or predict the likely outcome of peripheral artery disease. Digital twins of patients will also be used to test AI-enabled therapy and rehabilitation plans for lung-cancer patients. ADAPT also will evaluate AI trustworthiness and device security.

“Health care providers face numerous challenges diagnosing disease, or monitoring infections from traumatic injuries, or predicting likely outcomes of various treatment plans. It is an incredibly difficult job, but AI can remove some of those challenges,” said Bruce Gao, ADAPT scientific lead and South Carolina SmartState Endowed Chair of Biofabrication Engineering at Clemson. “In particular, AI can provide expedient information that will help physicians create a care of plan specific to each patient’s condition and medical history.”

To advance the research, EPSCoR funds will support hiring five tenure-track faculty members and eight postdoctoral researchers throughout the state, as well as adding new computing and other infrastructure. The project involves more than 30 faculty members across the institutions and is expected to support training for more than 100 new Ph.D. students and 400 undergraduate students. ADAPT will conduct outreach to encourage K-12 students throughout the state to explore careers in science, technology, engineering and math, and provide training to K-12 STEM educators.

The project has three primary goals:

- Build research capacity in AI-enabled biomedical devices in strategically identified areas to transform SC’s health care system, particularly in underserved areas;
- Build a diverse talent pool in the field of biomedical AI through innovations in education and workforce development from K-12 through all levels of higher education; and
- Foster interdisciplinary collaborations and academic–industrial partnerships by establishing research, education, and technology-transfer integrated programs.

Examples of ADAPT research

“ Health innovation has long been a strength at Clemson, and we continue to build a strong platform in AI research. ADAPT brings these two critical fields together to improve health care.



Tanju Karanfil,
Vice President for Research,
Clemson University

Researcher of the Year

A faculty member working to modernize automotive manufacturing and vehicle design and a plant breeder helping to improve agricultural productivity were named Clemson University Researchers of the Year.

Srikanth Pilla, the ExxonMobil Employees Endowed Chair in Automotive Engineering in the College of Engineering, Computing and Applied Sciences, was named senior Researcher of the Year at the annual Clemson University Research Symposium on May 10. Richard Boyles, assistant professor of plant and environmental sciences in the College of Agriculture, Forestry and Life Sciences, was named junior Researcher of the Year.

“Srikanth and Richard are pushing the boundaries of science in their fields and working closely with their communities so their innovations have great societal and economic impact. They exemplify the spirit of university research. I congratulate them and thank them for their efforts,” said Tanju Karanfil, vice president for research.



From left: Vice President for Research Tanju Karanfil, Srikanth Pilla, and President Jim Clements.

Pilla’s research interests are in the fundamentals and applications of sustainable and lightweight functional materials and manufacturing technologies. He is founder of the Clemson Composites Center, a multi-disciplinary, industry-focused research and development center, and leads AIM for Composites, a new \$10 million U.S. Department of Energy-funded Energy Frontier Research Center that is working to create a new design approach that utilizes artificial intelligence to assist the discovery of advanced composites. Pilla has amassed more than \$62 million in grant awards, co-authored more than 150 peer-reviewed articles and received numerous accolades,

including the Department of Energy Vehicle Technologies Office Distinguished Team Award, the Environmental Protection Agency Presidential Green Chemistry Challenge Award, and the S.C. Governor’s Young Scientist Award for Excellence in Scientific Research. He has advised 10 doctoral students, 22 master’s students and 20 undergraduate students.

“Srikanth Pilla’s hard work, dedication and vision have not only paved the way for transformative advancements in composite materials but are also shaping the workforce of the future and fostering economic development in South Carolina and beyond,” said Anand Gramopadhye, dean of the College of Engineering, Computing and Applied Sciences. “Dr. Pilla is a scholar and researcher par excellence, and I offer him my wholehearted congratulations on his recognition as Clemson University’s Researcher of the Year. It is very well deserved.”

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From left: Vice President for Research Tanju Karanfil, Richard Boyles, and President Jim Clements.

Boyles, a cereal grains breeder and geneticist at Clemson's Pee Dee Research and Education Center, combines molecular and conventional breeding methods to develop disease-resistant, nutritional crop varieties and hybrids with improved productivity. He received an Innovator Award from the Clemson University Research Foundation by licensing sorghum and oat lines that are now commercialized and are being grown on thousands of acres across the southeastern United States. He is chair-elect of the C-8 Plant Genetic Resources Division of the Crop Science Society of America and is a member of key committees such as the National Wheat Improvement Committee and the U.S. Wheat and Barley Scab Initiative. He has received nearly \$15 million in research funding and has published 32 peer-reviewed articles. He has advised one Ph.D. graduate and is currently

advising a postdoctoral fellow and three graduate students. Boyles earned his Ph.D. from Clemson in 2016 and in 2019 became a faculty member in the Department of Plant and Environmental Sciences.

"Rick Boyles is an outstanding researcher and an even more outstanding person," said Paula Agudelo, associate dean for research in the College of Agriculture, Forestry and Life Sciences. "He grew up in South Carolina and is committed to helping the producers and growers in the area – for him this is personal because it's his home. He is at the forefront of research in his field, but still understands the importance of how the knowledge can be applied so that his stakeholders can be successful."

For Researcher of the Year, each colleges nominates a junior faculty member who received their terminal degree within the past 10 years and a senior faculty member. Winners were selected by an interdisciplinary committee.

Additional senior faculty nominees were Paula Agudelo, associate dean for research in the College of Agriculture, Forestry and Life Sciences; Jeff Anker, dean's distinguished professor of chemistry in the College of Science; Anjali Joseph, Spartanburg Regional Health System Endowed Chair in Architecture and Health Design in the College of Architecture, Arts and Humanities; Robin Kowalski, professor of psychology in the College of Behavioral, Social & Health Sciences; Sandra Linder, professor of teaching and learning in the College of Education; and Philip Roth, Trevillian distinguished professor of management in the Wilbur O. and Ann Powers College of Business.

In addition to Boyles, junior faculty nominees were Fadi Abdeljawad, assistant professor of mechanical engineering in the College of Engineering, Computing and Applied Sciences; Serkhan Akturk, assistant professor of management in the Wilbur O. and Ann Powers College of Business; Matthew Browning, associate professor of parks, recreation and tourism management in the College of Behavioral, Social and Health Sciences; Golnaz Arastoopour Irgens, assistant professor of education and human development in the College of Education; Claire Kirwin, assistant professor of philosophy and religion in the College of Architecture, Arts and Humanities; and Matthew Koski, assistant professor of biological sciences in the College of Science.

University Research, Scholarship and Artistic Achievement Awards



The University Research, Scholarship and Artistic Achievement Awards were created in 2018 to recognize Clemson University faculty who have achieved rare career milestones, such as: Receiving the highest level of national or international recognition in their field; Authoring a paper that has received more than 1,000 citations; Expending more than \$1 million on research in a fiscal year. Six Clemson faculty members were awarded URSAAA designation at the annual Research Symposium on May 10.



Robert Anholt

Provost's Distinguished Professor, Genetics & Biochemistry

URSAAA Achievement:
Annual Expenditures Exceeding \$1 million



Kapil Chalil Madathil

Tiencken Endowed Associate Professor of Industrial & Civil Engineering

URSAAA Achievement:
Annual Expenditures Exceeding \$1 million



Ronnie Chowdhury

Eugene Douglas Mays Chair of Transportation

URSAAA Achievement:
Annual Expenditures Exceeding \$1 million



K.C. Wang

C. Tycho Howle Endowed Chair of Collaborative Computing

URSAAA Achievement:
Annual Expenditures Exceeding \$1 million



Luiz Jacobsohn

Associate Professor of Material Science & Engineering

URSAAA Achievement:
Fulbright Fellow Award



Lin Zhu

Professor of Electrical & Computer Engineering

URSAAA Achievement:
Annual Expenditures Exceeding \$1 million

Impacts, Honors and Achievements

Clemson professor becomes first African American woman inducted as a Fellow of the Academy of Leisure Sciences

A professor in the Clemson University College of Behavioral, Social and Health Sciences is making history as the first African American woman to be inducted as a Fellow of the Academy of Leisure Sciences (TALS).

Corliss Outley, professor in the Department of Parks, Recreation and Tourism Management and director of the Race, Ethnicity, Youth and Social Equity Collaboratory (REYSE), is the first African American woman in TALS' 43-year history to be named a Fellow of the Academy.

TALS is an international organization dedicated to advancing leisure studies through research, education and advocacy. The Academy represents several disciplines, including recreation, tourism, hospitality, sports and outdoor education – and Fellowships are distinguished honors that highlight outstanding performers and recognized leaders in the leisure profession.

As a professor of parks, recreation and tourism management at Clemson, Outley teaches and mentors students in areas such as youth development, cultural practices, recreation and leisure studies. She is committed to improving the environment for marginalized youth through community engagement and leadership development.

As director of the REYSE Collaboratory, she works alongside communities to learn their strengths and weaknesses and helps underrepresented citizens become fully represented, active participants in social, environmental, economic and educational institutions. Her research investigates the negative impact the sociopolitical system has on Black youth and the structural influence on human behavior as well as the unique challenges faced by Black youths in recreational settings.

Outley earned a Ph.D. in recreation and natural resources management from Texas A&M University and joined Clemson University in 2020.



Outley



Ryan

Joseph Ryan receives Fulbright Scholar Award

Joseph Ryan, Sue Stanzione Distinguished Professor in the Clemson University College of Education and executive director of Clemson LIFE, was recently selected for a U.S. Fulbright Scholar Award in Ireland to promote post-secondary education programs for young adults with intellectual disabilities.

Ryan will spend the Spring 2024 semester working at Trinity College in Dublin, Ireland, with the Trinity Centre for People with Intellectual Disabilities. During the semester, he will work with Ireland's post-secondary education programs to learn and share best practices, teach and conduct interdisciplinary research to improve the employment and independent living outcomes for individuals with intellectual disabilities.

"I am extremely honored to have been selected as a Fulbright scholar," Ryan said. "I am grateful for the privilege of helping improve the life outcomes for individuals with intellectual disabilities

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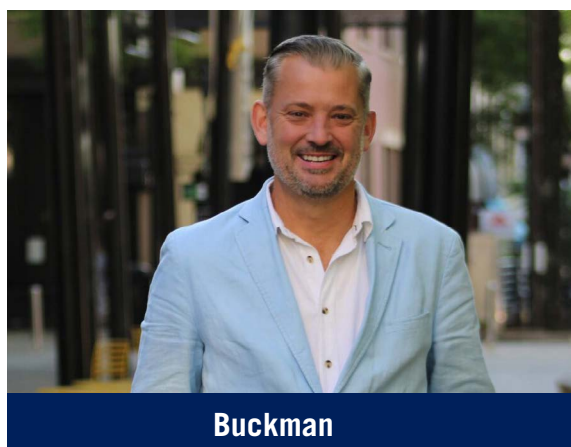
Impacts, Honors and Achievements

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internationally.”

The Fulbright Program is the U.S. government’s flagship international exchange program and is designed to create mutual understanding between people from the United States and other countries. Fulbright scholars have achieved distinction in many fields, including 62 who have been awarded the Nobel Prize, 89 who have received Pulitzer Prizes and 39 who have served as a head of state or government.

Ryan has over 100 publications and has served as editor of the journal *Beyond Behavior* for more than a decade. His research interests focus on behavioral interventions and enhancing post-school outcomes for individuals with disabilities. In 2023, he was awarded Clemson University’s Centennial Professorship for demonstrated excellence in scholarship and service.



Stephen Buckman receives Fulbright Scholar Award

Stephen Buckman, an associate professor in Clemson University’s Nieri Department of Construction, Development and Planning, has been selected as a 2023-2024 U.S. Fulbright Scholar for Brazil.

“I’m a little shocked and very humbled to be selected as a Fulbright Scholar,” Buckman said. “This is a huge honor.”

Buckman, who teaches in the Master of Real Estate Development program, will conduct research focusing on issues of land value capture and land tenure as it relates to the real estate sector and the integration of Rio De Janeiro’s favelas into the urban fabric.

“Favelas are informal settlements—often built with recycled materials—found in cities throughout Latin America,” Buckman explained. He plans to continue his examination of the Favela-Bairro Project with Professor James Miyamoto at the Universidade Federal do Rio de Janeiro.

Buckman plans to spend two months in Brazil in the summer of 2023, and another two months in the summer of 2024 to complete his research.

[READ MORE](#)

Clemson students, alumni receive Fulbright Scholarships

Two recent Clemson graduating seniors and two alumni have been awarded prestigious Fulbright Scholarships that facilitate cultural exchange, learning, research and service opportunities between American students and communities across the globe.

The Fulbright U.S. Student Program is designed to increase mutual understanding between the people of the United States and its 140 participating countries. Recipients are selected on their academic or professional achievements and demonstrated leadership potential in fields.

The following individuals earned Fulbright Scholarships:

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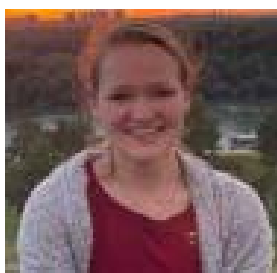
Impacts, Honors and Achievements

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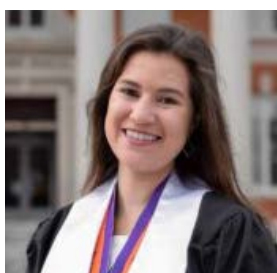
Janse

Carter Janse ('23) is an Honors graduate who majored in computer science with a minor in Spanish studies. He received an English teaching assistantship to return to Valencia, Spain, after working as a research assistant for the Polytechnic University of Valencia last summer. While he's there, he hopes to explore opportunities for collaboration with the university's Automatics and Industrial Informatics Research Institute. His goal is to combine his computer science background, teaching experience and Spanish proficiency to teach basic programming skills to Valencian students, including coordinating a hackathon at the end of the year.



Sutton

Molly Sutton ('23) majored in political science with a minor in history. She received an English Teaching Assistantship in Serbia, where she traveled for a study abroad experience this past summer. During that trip, she attended meetings with government officials in Serbia and other former Yugoslav countries and also took courses at the University of Belgrade, Faculty of Political Science. These discussions and experiences inspired Sutton's interest in how government actions, ethnic violence and major conflicts affect civilians. While in Serbia, Sutton plans to research the lingering effects of the Yugoslav wars on the country's people and future generations.



Gordillo

Kendra Gordillo ('21) was an Honors student and genetics major with a philosophy minor at Clemson. Her Fulbright/Vrije Universiteit Amsterdam Award will help cover cost-of-living expenses associated with graduate study at Vrije Universiteit Amsterdam. She plans to enroll in two master's degree programs – the first in philosophy, bioethics and health, and the second in research in global health. A viola player, she will also audition for the university orchestra. Gordillo was the first-ever recipient of the Distinguished Ethics Scholar Award from the Rutland Institute for Ethics in 2021 for her work to promote ethics education on campus.



Pearson

Alianna Cezzane Pearson ('22) majored in Spanish with a wildlife and fisheries biology minor. She received a teaching assistantship in Argentina, where she studied abroad as a Gilman Scholar before her experience was cut short by COVID-19 in 2020. A cheerleading and gymnastics coach, Pearson plans to apply similar principles to language training – encouraging her students to master the fundamentals, reinforce foundational skills and practice. She also hopes to use her background in Latin dance to engage her students. She currently works as a professional tutor for high school students and volunteers as a Spanish interpreter with a legal aid society, helping people facing language barriers find needed support.

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Sauer

Clemson business student graduates from inaugural Reagan Institute Civic Leaders Fellowship

Not long after Alexander Sauer II, Finance and Management '25, learned that he had been named a Thomas F. Chapman Leadership Scholar, he received information about the Ronald Reagan Presidential Foundation & Institute's new Civic Leaders Fellowship.

"Leadership development was already on my mind, so the fellowship's description really resonated with me," explained Sauer, who was a Pre-Business student in the Wilbur O. and Ann Powers College of Business at Clemson University when he discovered the opportunity. "The only requirement was to be an undergraduate student, so I applied."

Sauer described what followed as a "once-in-a-lifetime experience." He spent six months in the first cohort of a new leadership and professional development program designed to develop skills and knowledge for students who desire to improve their communities. Delivered in a hybrid format, the fellowship included virtual meetings and fully funded trips to the Reagan Institute in Washington, D.C., and

the Reagan Library in Simi Valley, California, where students learned about leadership and service from a wide range of professionals. Speakers included professors, entrepreneurs, journalists, CEOs, nonprofit leaders and members of Congress. Networking dinners and receptions created opportunities to interact directly with these professionals and with other students in the fellowship.

From advice on post-graduation careers to insights on serving at local, state and national levels, Sauer learned about service, civic duty, and how he could make a difference while building a successful career in any field.

"I learned so much about civic responsibility and leadership from the most incredible speakers," said Sauer. "And because the fellowship is fully funded, including the travel, there was no financial burden."

During the fellowship, Sauer noted that he was the only Clemson University student in a group of approximately 25 students from a broad spectrum of universities and majors.

[READ MORE](#)

Four Clemson students named Goldwater Scholars

Four Clemson University Honors College students received the 2023 Barry M. Goldwater Scholarship, the most prestigious and highly competitive national award for sophomore and junior students with the potential to advance research in mathematics, natural sciences and engineering.

Bioengineering junior Vaishnavi Kanduri, physics sophomore Grant Mondeel, mechanical engineering

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Impacts, Honors and Achievements

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Kanduri

junior Giovanni Orlandi and microbiology junior Joshua Tucker were selected from more than 1,267 students nominated by 427 universities nationwide. Clemson continues to lead the Atlantic Coast Conference (ACC) with 42 Goldwater Scholars since 2006.

The following individuals received Goldwater Scholarships:

Vaishnavi Kanduri is a junior majoring in bioengineering with a concentration in biomaterials and minors in genetics and materials science and engineering. She has been mentored by Jessica Larsen, an assistant professor of chemical engineering. After graduation, Kanduri plans to earn a Ph.D. in bioengineering and conduct research on the applications of nanoparticles for the delivery of therapeutics in the human body. She aspires to lead a research laboratory.

Grant Mondeel is a sophomore majoring in physics and minoring in mathematical sciences. He has been mentored by physics professors Endre Takacs, Joan Marler and Yuri Ralchenko. He plans to start taking graduate courses in his remaining two years at Clemson before seeking a Ph.D. in atomic physics and a job as a researcher in a national lab.

Giovanni Orlandi is a junior majoring in mechanical engineering and minoring in physics. He has been mentored by Fadi Abdeljawad, an assistant professor of mechanical engineering, and Enrique Martinez Saez, an associate professor of mechanical engineering and materials science and engineering. After graduation, Orlandi plans to obtain a Ph.D. with a primary focus on theoretical and computational materials science and then pursue research opportunities in academia or a U.S. national laboratory.

Joshua Tucker is a junior majoring in microbiology and minoring in biological sciences. He's been mentored by biological sciences faculty Antonio Baeza and Barbara Campbell. After he graduates from Clemson, Tucker plans to pursue a Ph.D. and support outreach programs for STEM-minded students in rural and underrepresented communities.



Mondeel



Orlandi



Tucker

Freedman receives Earth Caretaker Award

David Freedman of Clemson University ended the spring semester with an award that underscores his more than 50 years of dedication to environmental sustainability.

Freedman, chair of the Department of Environmental Engineering and Earth Sciences at Clemson, won the Earth Caretaker Award from his undergraduate alma mater, the University of Wisconsin-Green Bay (UWGB).

"I was surprised and delighted with the award," Freedman said. "I happen to know a number of people who have won the award in the past, and I have great admiration for them."



Freedman

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Freedman traced his interest in environmental sustainability to the first Earth Day in 1970, a time when pollution was impossible to miss and concern for the environment was less partisan than it is now. The Cuyahoga River catching fire in Cleveland and the thick smog shrouding Los Angeles, for example, became rallying cries for a generation.

Now, as department chair and professor, Freedman is helping shape the next generation of environmental engineers and Earth scientists and guiding innovative research that is helping keep the planet and its denizens healthy. In his career, Freedman has mentored 67 master's students, 12 Ph.D. students and five postdoctoral researchers. He has taught 14 environmental engineering courses from the undergraduate level to graduate school.

[READ MORE](#)



Coffin

Nine Clemson students and alumnae awarded graduate research fellowships

Seven graduating Clemson University seniors and two recent alumnae are receiving three years of financial support toward their graduate degrees through Graduate Research Fellowships provided by the National Science Foundation (NSF), with an additional student receiving an honorable mention.

The national fellowship program is highly competitive, with more than 12,000 applications every year. Recipients receive an annual stipend of \$37,000 toward their graduate program and an additional \$12,000 cost of education allowance that covers tuition and fees. They also benefit from professional development opportunities offered to fellowship recipients.

Carleigh Coffin ('23) majors in bioengineering with a minor in chemistry. During the COVID-19 pandemic, she partnered with another student to create a grocery store scanning device that uses light to combat viruses and other bacteria. Since then, she has worked as part of the Nanobiotechnology Lab on campus, exploring peptide-based targeted delivery systems for RNAi therapeutics to treat ovarian cancer.



Cutter

Gabe Cutter ('23) an Astronaut, Goldwater, and Point BIPOC Scholar, is an Honors student graduating with a double major in computer engineering and economics. His research focuses on creating the technology needed to produce affordable biomedical sensors that can save people's lives. He's worked with several research labs on and off campus and served as a research mentor for other engineering and biology students.



Hunter

Arabella Hunter ('23) a Goldwater, Beckman and Annexstad Leaders of Tomorrow Scholar, is an Honors student who majors in materials science and engineering with minors in math and chemistry. She studies magnetic nanoparticle interactions for applications to magnetic particle imaging and therapeutic diagnostics – research she's conducted at labs on campus and with faculty at MIT and the University of South Carolina.



McClendon

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Murray

Anna Logan McClendon ('23) is an Honors student who majors in biosystems engineering with an emphasis in bioprocessing and a double minor in mathematical sciences and sustainability. She explores how geospatial analysis can be used to develop climate-resilient solutions in underserved communities, such as rural communities in the South. She's conducted research with faculty on campus and through an internship with the Edisto Island Watershed Plan, using geospatial information systems (GIS) to analyze water quality data and determine pollution sources.



Seiter

Amanda Murray ('23) is an Honors student who majors in bioengineering with a concentration in biomaterials and a minor in chemistry. Her research focuses on improved ovarian cancer disease models for in vitro nanoparticle delivery testing applications in Alexander-Bryant's Nanobiotechnology lab. Murray will be earning her Ph.D. in Bioengineering at the University of Pennsylvania, with the goal of working in academia and leading her own research lab while mentoring the female engineers of tomorrow.



Wilkins

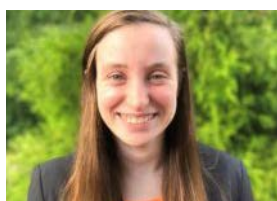
Jacob Russell Seiter ('23) majors in plant and environmental sciences with a concentration in agricultural biotechnology. He researches how plant viruses spread disease in various botanical systems worldwide. He's conducted that research at a molecular biology lab on campus and with the Institute for Mediterranean and Subtropical Horticulture in Malaga, Spain.



Clevenstine

Grant Wilkins ('23), a double major in computer engineering and mathematical sciences as well as a National Scholar and Honors student, has also been awarded Churchill, Astronaut, and Goldwater scholarships. He is also this year's recipient of the University's prestigious Norris Medal, awarded to the best all-around graduating senior. Wilkins researches green computing and smart grid applications that can keep the electrical grid running, even in a climate crisis.

Ronnie Clevenstine ('22), a Truman Scholar and National Scholar, is Clemson University's first-ever Graduate Research Fellowship recipient in the social sciences. She majored in economics with a minor in political science, applying economics to understand how best to leverage the powerful tools of data analysis and econometric modeling toward improving outcomes for low-income communities.



VanAtter

Chelse VanAtter ('21) studied bioengineering with a bioelectrical concentration at Clemson to build the knowledge and skills needed to pursue a career in robotics. After graduation, she worked as an electrical design engineer at Schneider Electric and at Hewlett Packard, where she designed new parts and processes for a pick-and-place robot that places flexible circuits in ink cartridges.

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Pak

Clemson Psychology Professor Richard Pak Elected to the Prestigious College of Fellows for the Human Factors and Ergonomics Society

Psychology professor Richard Pak was recently elected to the College of Fellows for the Human Factors and Ergonomics Society (HFES). Receiving a Fellow designation – the highest recognition possible from the College of Fellows – is a high honor that recognizes consistently impressive professional contributions, service to the Society and other accomplishments.

The HFES, an organization for individuals involved in human factors and ergonomics, is the largest organization of its kind in the world. Active members include students, engineers, designers and scientists from the private sector, government agencies, universities, military research centers and more. Coming from diverse disciplinary backgrounds, members share a common goal of designing safe and effective equipment for individuals across industries. Pak has been involved with the Society for the past 21 years – first as a student member and later as an employed member. He was one of two people to receive this recognition for 2022.

As the world becomes more automated, it is critical to understand how users of all ages and types behave and perform with autonomous technology. Pak's research interest is in understanding the psychological factors that determine successful interactions with automated technologies from smartphones and GPS to complex automated unmanned aerial vehicle (UAV) control or human-robot collaboration. [READ MORE](#)

Venayagamoorthy wins President's Award from the South African Institute of Electrical Engineers

Ganesh Kumar Venayagamoorthy of Clemson University received the President's Award on March 13 from the South African Institute of Electrical Engineers (SAIEE).

Venayagamoorthy serves as the Duke Energy professor of power engineering and professor of electrical and computer engineering at Clemson.

The award recognizes "significant contributions in any sector of electrical, electronic, telecommunications and computer engineering in South Africa," according to an SAIEE press release.

Venayagamoorthy is an honorary professor at the University of KwaZulu-Natal, Durban in South Africa, where he received a Master of Science in Engineering and Ph.D. degrees, both in electrical engineering.

He has been a Fellow of SAIEE since 2008. Venayagamoorthy is also a Fellow of the IEEE, the Institution of Energy and Technology (UK) and the Asia-Pacific Artificial Intelligence Association.

Venayagamoorthy was a recipient of the 2005 SAIEE Young Achievers Award, and his research team has published several papers at SAIEE-sponsored conferences and in SAIEE journals.

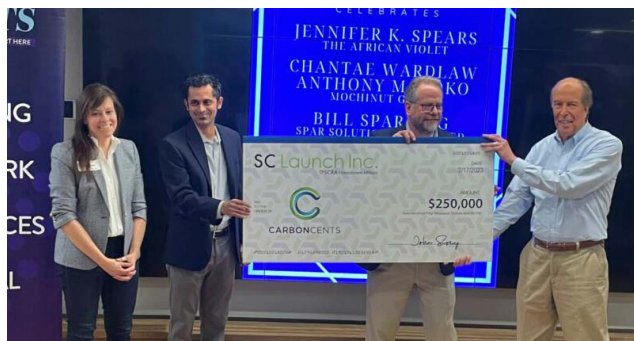


Venayagamoorthy

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Clemson University sustainability technology startup receives SC Launch funding award

Clemson University and the Clemson University Research Foundation (CURF) are proud to announce that CarbonCents Inc. has received approval from the SC Launch Inc. board for a \$250,000 convertible note.

CarbonCents is a technology-driven company that offers predictive energy management platforms for carbon reduction data. The company's system enables

the measurement and analysis of a building's power, temperature, water usage, indoor air quality, and occupancy in a utility data system. This data is then used to create an energy usage index that helps organizations plan and achieve their sustainability goals. CarbonCents was founded by Tim Howard, facility solutions manager at the Clemson University Watt Family Innovation Center, and Snowil Lopes, director for technology and research at the Clemson University Energy Visualization and Analytics Center (CEVAC), to commercialize the CEVAC platform they developed in collaboration with David White, research associate for analytics and GIS at the Clemson University Watt Family Innovation Center, and Carl Ehrett, research data scientist at the Clemson University Watt Family Innovation Center.

As an SCRA Member Company, a status they gained last year, CarbonCents was awarded a \$25,000 Academic Startup Grant and a \$50,000 Acceleration Grant that has helped them continue to transform the energy market with the use of the CEVAC software platform consisting of three modules. These modules give organizations the visualization and analytics tools needed to make better decisions about their emissions and energy costs by collecting, measuring, and supplying carbon reduction data. CarbonCents also became a SC Launch Portfolio Company with the \$250,000 convertible note investment.

SC Launch Inc. is the investment affiliate of the South Carolina Research Authority (SCRA). As an affiliate of SCRA, SC Launch Inc. supports innovative technology and technology-based businesses with seed and follow-on capital to supplement funding. The SC Launch Inc. board's decision to approve the \$250,000 convertible note is a significant milestone for CarbonCents, providing the startup with the funding necessary to accelerate its growth and bring its innovative solution to market.

"CURF is excited about the potential impact of CarbonCents and what the funding from SC Launch Inc. can do to help advance market entry and scale customer acquisition activities to generate near-term revenues. CarbonCents is a prime example of the later stage innovative research coming out of Clemson University. I am excited to see this company continue to grow and thrive," said Chris Gesswein, CURF's executive director.

"What we had in mind when starting CarbonCents was to help entities reduce their carbon footprint and, in turn, reduce their costs. Our state-of-the-art innovation provides those insights organizations need while helping them create healthier working environments," said CEO and Co-Founder Tim Howard. "We thank the SCRA and SC Launch Inc. teams for supporting our mission."

With the support of SC Launch Inc., CarbonCents is well-positioned to make a significant impact on the environment and create a more sustainable future for all.

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Sather-Wagstaff

Sather-Wagstaff named Association for Women in Mathematics Fellow

Clemson University Professor of Mathematical and Statistical Sciences (SMSS) Keri Ann Sather-Wagstaff has been named an Association for Women in Mathematics Fellow for the 2023 class.

The Association for Women in Mathematics (AWM) is a leading professional society for women in mathematics career fields. Since its founding in 1971, the organization has worked to create a community in which women and girls can thrive in their mathematical endeavors and to promote equitable opportunity and treatment of women and others of marginalized genders and gender identities across the mathematical sciences.

Sather-Wagstaff's AWM Fellows citation stated she received the award "for her sustained advocacy, support and mentorship of women, girls, gender minorities, and other historically underrepresented groups in mathematics; and for spearheading local and national efforts targeting high-need areas to improve the working environment for all."

Sather-Wagstaff joined the Clemson University faculty in 2015.

She is currently on leave to the National Science Foundation, where she will serve as a program officer until 2025 on two project teams: NSF ADVANCE, which supports systemic change projects to enhance gender equity and inclusion for STEM faculty, and Alliances for Graduate Education and the Professorship (AGEP), which works to increase the number of historically underrepresented minority faculty in STEM. As a program officer, Sather-Wagstaff will convene review panels and make funding recommendations to NSF.

[READ MORE](#)

Alston Award winner Coleman respected around SC for hard work, integrity

After more than three decades of service to Clemson University, first as a "trailblazer" in governmental affairs and now as director of its agricultural research outpost in Columbia, Kathy Coleman has been recognized for bringing positive visibility to South Carolina's primary land-grant institution throughout the state, the nation and the world.

Coleman is the 2023 recipient of the Rowland P. Alston, Sr., '42 Award for Excellence in Public Relations, established to recognize outstanding Clemson faculty or staff who, through programs and activities related to agriculture and/or natural resources, have provided the university with such visibility. The award is made possible by an endowment established by Rowland Alston, retired Extension agent and former host of the public television program "Making It Grow," in memory of his father.



Coleman

"I'm very honored and humbled to receive this award," Coleman said. "I love working for Clemson

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and being an advocate for agriculture in South Carolina. I love what I do, and I believe in the work that is done by Clemson, as a land-grant institution, for the people of this state. Growing up in 4-H and being a part of Clemson has taught me the value of public service, which has helped me tremendously in my profession as well as in my role on Saluda School Board of Trustees. It's a privilege to get to do something you enjoy every day."

A Clemson University graduate in agricultural economics, Coleman returned to her alma mater after earning her Ph.D. from Texas A&M and has been with Clemson for over 37 years, with 29 of those years spent working in governmental affairs.



Thavarajah

Thavarajah receives Clemson's 2023 Godley-Snell Award

Dil Thavarajah is a researcher who is passionate about combating global obesity and malnutrition.

She is following this passion to help Clemson University fulfill its land-grant mission. In recognition of her achievements, Thavarajah has received Clemson's highest agricultural research award, the 2023 Godley-Snell Award for Excellence in Agricultural Research.

A professor, researcher and trained pulse crop physiologist in Clemson's Department of Plant and Environmental Sciences, Thavarajah also is a faculty research scholar in the Clemson School of Health. She is working to connect human health and global food by improving genetics and nutritional value of pulse crops such as lentils, dry peas and chickpeas, as well as provide South Carolina farmers with alternative food crops to grow.

She shares her knowledge with people through research, teaching and the Cooperative Extension Service – the three pillars of land-grant institutions.

Clemson professor receives fellowship from Trusted CI, National Science Foundation Cybersecurity Center of Excellence

A Clemson University professor has been selected to participate in the National Science Foundation's 2023 Trusted Cyberinfrastructure (CI) Open Science Cybersecurity Fellows program.

David White, research assistant professor in the Department of Parks, Recreation and Tourism Management, is one of six Fellows chosen by Trusted CI to participate in the prestigious program this year.

Trusted CI Fellows program provides cybersecurity experts and global research leaders with professional development opportunities, training and other resources in order to develop their knowledge and skills in the field of cybersecurity. In exchange, Fellows serve as liaisons within their scientific and geographic communities, champion for cybersecurity research and communicate challenges and successes to Trusted CI. [READ MORE](#)



White



RESEARCH

FOCUS ON FACULTY

This section features faculty members at Clemson University. Each College submits a profile of one faculty member.

Executive Summary

- Six Clemson faculty have earned NSF CAREER Awards and two CAREER proposals are still pending. Additionally, one Clemson faculty member has earned the Young Investigator Research Program Award from the Air Force Office of Scientific Research, and for the first time, a Clemson faculty member has earned a prestigious Beckman Young Investigator Award ([pages 33-34](#)).
- Each college provided a brief introduction to a select faculty member. Click the links below to read about faculty from the respective college.
 - » [College of Agriculture, Forestry and Life Sciences](#)
 - » [College of Architecture, Arts and Humanities](#)
 - » [College of Behavioral, Social and Health Sciences](#)
 - » [Wilbur O. and Ann Powers College of Business](#)
 - » [College of Education](#)
 - » [College of Engineering, Computing and Applied Sciences](#)
 - » [College of Science](#)

Junior faculty are earning the nation's most prestigious awards for early career researchers

Numerous funding agencies offer grant programs available to early-career faculty. These highly competitive programs serve as catalysts to jumpstart the careers of the nation's most promising young faculty.

The National Science Foundation (NSF) calls its Early CAREER program “the most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization. Activities pursued by early-career faculty should build a firm foundation for a lifetime of leadership in integrating education and research.” Indeed, many of Clemson's past Early CAREER recipients have advanced to become some of Clemson's most advanced researchers. A list of current and past CAREER awardees at Clemson is posted [online](#).

An increasing number of Clemson faculty are earning these awards each year, and in fact, Clemson has among the highest rates of CAREER awardees among its faculty body when compared to peer institutions. Only Virginia Tech and Georgia Tech have more active CAREER awardees per faculty member than Clemson.

Already this year, six Clemson faculty have earned NSF CAREER Awards and two CAREER proposals are still pending. Additionally, one Clemson faculty member has earned the Young Investigator Research Program Award from the Air Force Office of Scientific Research, and for the first time, a Clemson faculty member has earned a prestigious Beckman Young Investigator Award.



Tran

Thao Tran, assistant professor of chemistry, received a \$600,000 Beckman Young Investigator Award from the Arnold and Mabel Beckman Foundation, which created the award program to support the “most promising young faculty members in the early stages of their academic careers in the chemical and life sciences particularly to foster the invention of methods, instruments and materials that will open up new avenues of research in science.” Tran's research aims to unlock quantum technologies by using new chemical approaches to tune their structure and behavior, helping to unleash the unparalleled power of quantum computing.



Wang

Yao Wang, assistant professor of physics and astronomy, received a \$450,000 Young Investigator Research Program Award from the Air Force Office of Scientific Research to support his research on superconductivity. Superconductors are one of the most attractive materials for modern science and are at the cornerstone of the next technological revolution. They have been applied to power transmission, quantum computing, controlled fusion, medical imaging and high-speed transportation. And they hold promise for other applications in industry and the military.



Price

Samantha Price, assistant professor of biological sciences, received a \$1.3 million NSF CAREER Award to advance her research on the repeating themes and general principles governing the evolution of biodiversity. In addition, Price plans to increase research opportunities for underrepresented students through the creation of the Classroom-based Undergraduate Research Experience (CURE) lab. The CURE lab will increase the number of students experiencing research in the Department of Biological Sciences by 50 percent, with at least 250 students participating over five years.

continued on next page ►

Early Career Awards

► continued from previous page



Suseela

Vidya Suseela, assistant professor of plant and environmental sciences, received a \$1.2 million NSF CAREER Award for her research on soil organic carbon. Suseela investigates the effect of plant functional types on the quantity, composition and stabilization of soil carbon and the associated nutrient cycling for improving the soil health and productivity of agroecosystems. Her work aims to enhance soil health, thus improving agricultural productivity, food security and human health while reducing environmental pollution and mitigating climate change.



Koski

Matthew Koski, assistant professor of biological sciences, received a \$1 million NSF CAREER Award for his study of the ecological and evolutionary processes that generate color diversity in flowering plants. As part of his CAREER project, Koski will mentor at least 10 undergraduates from Clemson's biological sciences and education programs through two newly formed Creative Inquiry (CI) courses. One group will use plots established in the Clemson Experimental Forest to conduct research and outreach with 4-H Junior Naturalists (K-12 students). The other student group will manage a Citizen Science project fueled by members of native-plant societies in seven states.



Afghah

Fatemeh Afghah, associate professor of electrical and computer engineering, received a \$541,949 NSF CAREER Award for research on the use of Unmanned Aerial Vehicles (UAVs) in disaster management operations to collect data and imagery to inform rescue teams. Current operations often involve a single UAV remotely controlled by a commander or pilots in a manned aircraft relatively close to the danger-zone. Afghah will work to develop frameworks for a network of fully autonomous multi-agent systems with minimum human interventions.



Arastoopour
Irgens

Golnaz Arastoopour Irgens, assistant professor of education and human development, received a \$1.4 million NSF CAREER Award for a project to develop critical computing curriculum in elementary schools called CritComp Pop-ups, in which upper elementary students evaluate and develop AI technologies. The project will involve 500 students, teachers, school administrators and researchers in the design and implementation of the curriculum. The research will take place in an area with schools with a high percentage of African Americans and youth in poverty.



Liu

Shunyu Liu, assistant professor of automotive engineering, received a \$503,613 NSF CAREER Award for research on a novel hybrid in-situ rolled additive manufacturing (HI-RAM) technique to fabricate high-performance structural parts that could be used as critical components for many industries. This project will build partnerships with colleges, high schools, local manufacturers and manufacturing organizations to deliver professional training related to HI-RAM, aimed at motivating and preparing a high-quality manufacturing workforce. The project involves multiple disciplines, including advanced manufacturing, materials science, structural mechanics, and applied mathematics, and expects to broaden the participation of women and underrepresented minorities in STEM.



College of
**AGRICULTURE, FORESTRY
AND LIFE SCIENCES**

R. “Karthi” Karthikeyan, Ph.D.

*Charles Carter Newman Endowed Chair of
Natural Resources Engineering*

Agricultural Sciences



Karthikeyan is an agricultural engineer with 27 years of research experience in the fields of crop growth modeling, geographic information science, conservation and management of natural resources, contaminant transport modeling, remediation of contaminated environment, human health risk assessment, water disinfection, and biochemical wastewater treatment processes. Over the years, he has developed strong interdisciplinary research teams consisting of engineers, scientists, and policy makers to address water resources and environmental issues.

Karthikeyan has an excellent record in obtaining and managing extramural funding for research programs. He has published 75 refereed journal papers; written three book chapters; and developed 17 technical project reports and three models. He has given 14 invited talks and 16 guest lectures and conducted nine software workshops. He and his collaborators have presented in 72 conferences and 29 stakeholder meetings.

Karthikeyan has mentored 90 graduate students (as a chair/co-chair or committee member), four post-doctoral associates, two visiting scientists, and 15 undergraduate researchers. He has taught 17 different courses, of which he developed six.

Karthikeyan has been serving on several departmental, college, university, and professional society committees and the editorial board of two journals; *Frontiers in Water* and *Frontiers in Plant Sciences*.

Select Accomplishments

- \$23 million in grants from the U.S. Department of Agriculture and National Science Foundation since joining in Clemson in 2020.
- 11 refereed publications since 2020.
- Team lead of the Provost’s ClemsonElevate Task Force.
- Member of the President’s Social Justice and Equity Task Force.
- Member of the Asian Pacific Islander and Desi American Commissions.
- Member of the Carolina Gold Rice Foundation.



College of
**ARCHITECTURE, ARTS
AND HUMANITIES**

Dustin Read, Ph.D.

Professor

**Nieri Department of Construction, Development
and Planning**



Read serves as director of the Master of Real Estate Development Program at Clemson University. Prior to this post, he held leadership positions in the real estate programs at Virginia Tech and the University of North Carolina at Charlotte. Some of his research interests include affordable housing, land-use policy, and public-private partnerships. Read is a NAIOP Research Foundation Distinguished Fellow, an inductee into the Institute of Real Estate Management's Academy of Authors, and a seven-time recipient of honors from the American Real Estate Society for his contributions to real estate theory and practice. His research can be found in many of the leading academic journals in his field, including the *Journal of Real Estate Finance and Economics*, *Journal of Real Estate Research*, and *Journal of Real Estate Portfolio Management*. In addition to his academic work, Read frequently consults with both public and private sector organizations to promote socially responsible real estate development.

Select Accomplishments

- Received a best paper award from the American Real Estate Society for his research on senior housing presented at the organization's annual conference. The prize-winning paper, co-authored with Donna Sedgwick at Virginia Tech, is titled "Do affordable housing professionals employed in the for-profit and non-profit sectors conceptualize the work of their companies differently?"
- Emerald Literati Award (2020). Highly Commended Paper Published in Property Management.
- NAIOP Research Foundation Distinguished Fellow (2020).
- Read, D.C., and Sanderson, D.C. (2021). Obstacles to comprehensive real estate asset management. *Journal of Financial Management of Property and Construction*, 26(1), 49-62.
- Fisher, P.J., and Read, D.C. (2020). Learning about networking from women in the commercial real estate industry. *Journal of Real Estate Practice and Education*, 22(1), 13-21.
- Zillante, A., Read, D.C., and Seiler, M.J. (2020). Assembling land for urban revitalization in the presence of linchpin parcels and information asymmetries: An experimental investigation. *Land Use Policy*, 99, 1-9.



College of
**BEHAVIORAL, SOCIAL
AND HEALTH SCIENCES**

Brandon Boatwright, Ph.D.

Assistant Professor

Communication



Boatwright is a two-time graduate of Clemson University and completed his doctoral studies at the University of Tennessee, Knoxville in communication and information with an emphasis in advertising and public relations in 2020. His research focus examines the intersection of sports, social media, and strategic communication. Broadly, his scholarship in these areas encompasses a range of topics related to online opinion leadership, internet and social media use, and social advocacy and activism. Boatwright employs a variety of methodological approaches, but is particularly interested in social and semantic network analysis of digital and social media platforms.

Boatwright also serves as the director of the Social Media Listening Center (SMLC), housed in the Department of Communication.

He has published original research in *Communication & Sport*, *Public Relations Review*, *The International Journal of Sport Communication*, *Computers in Human Behavior*, *The International Journal of Strategic Communication*, and the *Southern Communication Journal*. He is an active member of the National Communication Association and the Southern States Communication Association.

Select Accomplishments

- Published 11 peer-reviewed articles with Clemson affiliation since joining the faculty in the Fall of 2020.
- Oversaw project to relocate Social Media Listening Center to Cooper Library in the fall of 2022.
- Established partnership with Sprinklr in the Social Media Listening Center – a social media analytics platform used by 80 of the top Forbes 100 companies.
- Co-authored social media research methods textbook currently under contract with Cognella Publishing.
- Published three peer-reviewed book chapters since joining the faculty.
- Participated in the Top Paper Panel of the Communication and Sport Division of the National Communication Association (Fall 2022).



Wilbur O. and Ann Powers College of

BUSINESS**Angela G. Morgan, Ph.D.***Associate Professor and Chair***Finance**

Morgan is the chair of the Department of Finance and has been a member of the finance faculty at Clemson since 2000. She does research on shareholder voting, mergers and acquisitions, executive compensation, and corporate governance. She is currently writing an advanced corporate finance textbook in novel form.

Morgan teaches a senior-level class on corporate valuation, which is part of the corporate finance emphasis area. Topics include discounted cash flow, comparable firms, and comparable transaction valuations, as well as mergers and acquisitions, recapitalizations, and executive compensation. In the summer, she teaches the second half of the Introduction to Finance course.

Morgan received her undergraduate degree from Clemson University and her MBA and Ph.D. from the University of Georgia. She worked in Atlanta as a securities analyst before entering into academics.

Select Accomplishments

- Bradley, D., A. G. Morgan, and J.G. Wolf, Analyst Behavior around Tender Offer Announcements (*Journal of Financial Research*, Vol. 30, 1-19. Spring 2007).
- Burch, T.R., A.G. Morgan, and J.G. Wolf, Is Acquiring-firm Shareholder Approval in Stock-for-stock Mergers Perfunctory (*Financial Management*, Vol. 33, 45-69. Winter 2004).
- Megginson, W. L., A. G. Morgan, and L. Nail, Changes In Corporate Focus, Ownership Structure, and Long-Run Merger Returns (*Journal of Banking and Finance*, Vol. 28, 523-552. March 2004).
- Morgan, A.G. and A.B. Poulsen, Linking Pay to Performance: Evidence from Compensation Proposals in the S&P 500, (*Journal of Financial Economics*, Vol. 62, 489-583, 2001).
- Morgan, A. G., A. B. Poulsen, and J. G. Wolf, The Evolution of Shareholder Voting for Executive Compensation Schemes (*Journal of Corporate Finance*, 12, Issue 4, 715-737. Sept. 2006).
- Morgan, A. G., A. B. Poulsen, J.G. Wolf, and T. Yang, Mutual funds as monitors: Evidence from mutual fund voting, (*Journal of Corporate Finance*, 2011).



College of
EDUCATION

Julianne A. Wenner, Ph.D.

Associate Professor

Teaching and Learning



Wenner's scholarly productivity focuses on supporting equitable access to and opportunities in elementary science education. To those ends, she focuses on four major areas of research: professional development with in-service elementary teachers, (science) teacher leadership, preparing pre-service elementary teachers, and how families support their children in science. She has published 30 book chapters and articles, with her work included in premier journals such as the *Review of Educational Research*, *Journal of Research in Science Teaching*, *Science Education*, *Journal of Science Teacher Education*, and *School Science and Mathematics*. Wenner has also secured external funding as a principal investigator (PI) or co-PI totaling \$4.9 million.

Serving her field, Wenner is currently on the editorial board of the *International Journal of Teacher Leadership* and the editorial review board of *Journal of Science Teacher Education*. She reviews for several journals and is an active member of the Association for Science Teacher Education (ASTE), American Educational Research Association (AERA), and NARST (formerly the National Association for Research in Science Teaching). Wenner also provides professional development related to science for elementary schools and is serving as the faculty-in-residence at Six Mile Elementary for the 2022-2023 academic year.

Select Accomplishments

- Co-PI - Building Leadership Among Science Teachers (BLAST) Program: Designing, Developing, and Implementing a Science Teacher Leadership Academy, National Science Foundation, Noyce Program, (\$2,896,658; PI: Whitworth), 2023-2029.
- PI and Fellow Mentor – Sandra K. Abell Institute for Doctoral Students, NARST (\$50,000, PIs: Gotswal, Schwarz, Wenner, Whitworth), 2023.
- PI - Investigating Family Science Habitus and Science Capital to Support the Language of Possibility Around Science, National Science Foundation, BCSER Program, (\$349,579), 2022-2025.
- College of Education Awards: Honorary Distinction for Over 250 Citations on a Single Work as Lead Author, 2022; Distinction for Total Citation Achievement (for over 100 citations total), 2022; College of Education Award - Finalist for the Award of Excellence in Teaching, 2022.
- University of Georgia Mary Frances Early College of Education Early Career Researcher Distinguished Alumni Award, 2021.



College of
**ENGINEERING, COMPUTING
AND APPLIED SCIENCES**

Rajendra K. Bordia, Ph.D.

*George J. Bishop III Chair Professor in Ceramic
and Materials Engineering*

Materials Science and Engineering



Bordia is the George J. Bishop III Chair Professor in Ceramic and Materials Engineering in the Department of Materials Science and Engineering at Clemson University. His research is at the intersection of materials and mechanics and is focused on fundamental and applied studies in the processing and properties of complex material systems for energy, extreme environment and medical applications. He has authored or co-authored more than 170 peer-reviewed technical publications. He is a Fellow of the American Ceramic Society; Fellow of the Indian Institute of Metals; Fellow of the International Society for Energy, Environment and Sustainability; and an academician in the World Academy of Ceramics (2012).

Select Accomplishments

- Since 2017, he has served as the scientific director and co-PI of the statewide NSF-funded (\$20 Million) EPSCoR Track-1 project titled Materials Assembly and Design Excellence in SC (MADE in SC). This project has resulted in approximately 200 peer-reviewed papers published in high-impact journals. Every year, approximately 60 faculty members, 15 post-docs, 60 graduate students, and 50 undergraduate students are contributing to research.
- In 2020, he led the development of Clemson's first successful NSF Bridge to Doctorate proposal on which President Clements is the PI. He is co-leading the implementation of this project (with professors Cindy Lee and Oliver Myers, and Ms. Tonyia Stewart). The full cohort of 12 underrepresented minority students started their Ph.D. program this August.
- He is the Clemson lead for a [recently announced](#) \$10 million project funded by the U.S. Air Force Research Laboratory to develop ceramic-matrix composite materials that would be lighter and better able to withstand extreme temperatures than metal alloys currently in use, yet still strong enough to maneuver during high-speed flight. The project is a collaboration with GE Aerospace and Missouri University of Science and Technology.
- 2020 recipient of the McQueen Quattlebaum Faculty Achievement Award from CECAS.
- 2020 recipient of the Distinguished Service Award from Indian Institute of Technology.
- 2022 recipient of the Champion H. Mathewson Award from the American Institute of Mining, Metallurgy and Petroleum Engineers (AIME). This award recognizes a paper, which represents the most notable contribution to metallurgical science in the award period.



J. Antonio Baeza, Ph.D.

Associate Professor

Biological Sciences



J. Antonio Baeza is an integrative organismal biologist focusing in testing major theoretical models and predictions in the fields of evolutionary ecology, phylogenetics and phylogeography, and conservation and fisheries biology. He uses marine invertebrates, some of them economically valuable, as model systems: marine crustaceans, including crabs, shrimps, and spiny lobsters. His research is both hypothesis and curiosity-driven and he uses a multidisciplinary approach, a combination of molecular tools, natural history observations, basic modeling approaches, and manipulative experiments to accomplish his research goals. His current research programs have three main foci (1) evolutionary biology: adaptive value of sex allocation strategies and mating systems, (2) biodiversity: discovery and diversification, and (3) conservation and sustainable management of exploited (ornamental) resources. A fourth research program that he started at Clemson and that is currently under intense development focuses on (4) genomics of marine and terrestrial organisms subjected to major environmental insult.

Most recently, discoveries by his research team have made considerable impacts on the understanding of epidemiology in marine invertebrates. Baeza's research team is understanding how pathogens, including viruses, nemertan and trematode worms, and bacteria affect the health of the Caribbean spiny lobster *Panulirus argus*. The aforementioned lobsters are targeted by a billion-dollar fishery industry in the greater Caribbean (from North Carolina to Brazil) and all populations are either fully exploited or over-exploited. Understanding epidemiology will help the industry and coastal communities, not only in the United States but across the Caribbean ecoregion, to prepare for future diminished landings that might be exacerbated by global climate change. His team includes undergraduates that actively conduct research under his guidance and is developing genomic resources for large vertebrate species experiencing major environmental impact. He has published intensively with Creative Inquiry undergraduate students on the mitochondrial genomes of panda bears, tigers, tapirs, and sharks, among others, to aid with the bioprospecting and biomonitoring of this iconic endangered species. Baeza has been actively developing research proposals, publishing scientific results, and training the next generation of scholars at Clemson.

Select Accomplishments

- Recipient of College of Science Excellence in Student Engagement Award.
- Leading National Oceanic and Atmospheric Administration (NOAA) funded grant to understand epidemiology in Caribbean spiny lobsters (\$300,000).
- Published more than 120 papers and presented more than 100 invited talks at conferences.



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