



Research and Sponsored Programs

ANNUAL REPORT FISCAL YEAR 2020

JULY 1, 2019 - JUNE 30, 2020



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WELCOME

Fiscal Year 2020 witnessed momentous and rapid changes in the ways that we at UTC teach, learn, work, and engage. Through an uncertain and shifting landscape, faculty and staff remained stalwart in their commitments to teaching & learning, outreach, creative endeavors, and scholarly inquiry. The 2019 - 2020 ORSP Annual Report documents UTC's sponsored activity achievements, which make invaluable contributions towards UTC's mission and strategic plan goals. The campus continues to attract external resources that invest in our community, engage research and scholarship across academic disciplines, promote student opportunities, foster innovation through research and development, and grow our capacities in strategic and sustainable ways.

In FY20, UTC faculty and staff prepared and submitted nearly 200 proposals with a collective potential dollar value in excess of \$62 million - a 25% increase in funds requested over FY19. The good efforts of our faculty were recognized with awards totaling \$11.4 million in funds for outreach, scholarship, and student support plus an additional \$10 million in CARES Act funding in response to the COVID-19 pandemic.

While these achievements reflect the meritorious efforts of our faculty, they also underscore the contributions of the many units that support research and sponsored program activity. Please join me in congratulating all of the FY20 awardees for their successes and thanking those who have submitted proposals during FY20. The skill, expertise, and good effort of so many on campus working together is an investment that will pay dividends for our shared future.



Dr. Joanne Romagni

Vice Chancellor for
Research and Dean of
the Graduate School



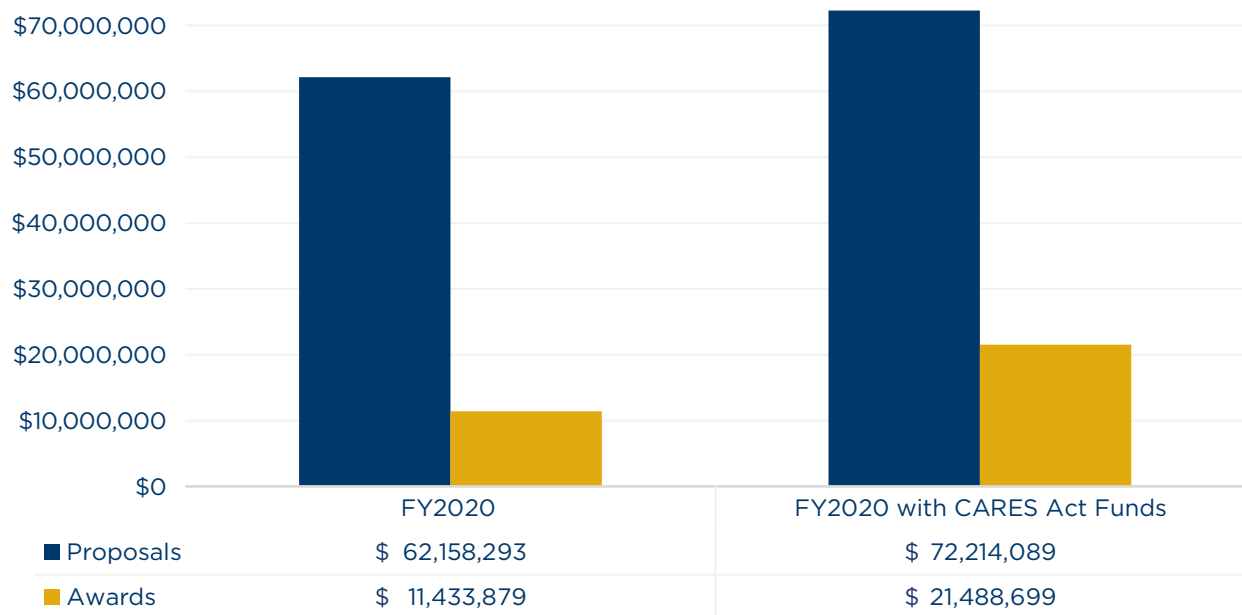
ORSP Staff Members

(From left to right and
front to back)

Meredith Perry,
Terri Bearbower,
Maria Derrick,
Sam Stanley,
Angie Johnson,
Todd Doman and
Tracey Woodbury

CARES ACT FUNDING

PROPOSALS & AWARDS WITH CARES ACT

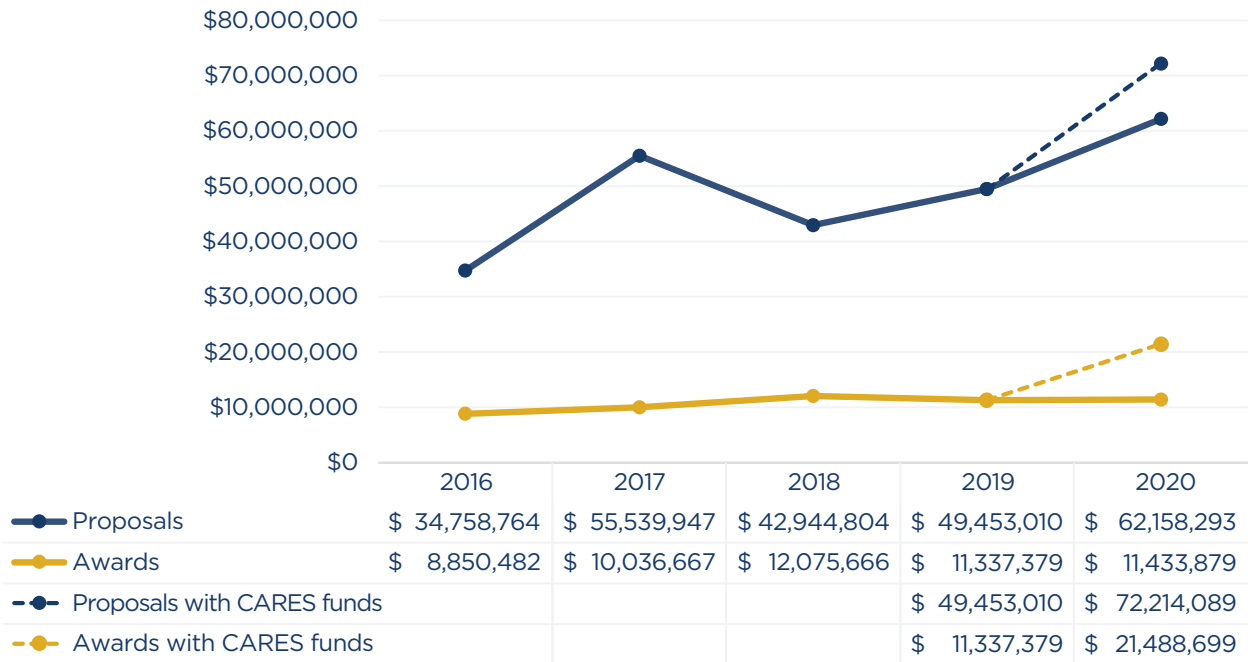


The Coronavirus Aid, Relief, and Economic Security (CARES) Act was passed to provide relief to people experiencing the negative effects of the COVID-19 pandemic. While UTC received funding from the CARES Act via several federal agencies, these awards are solely to provide relief to students and the university to help our community recover.

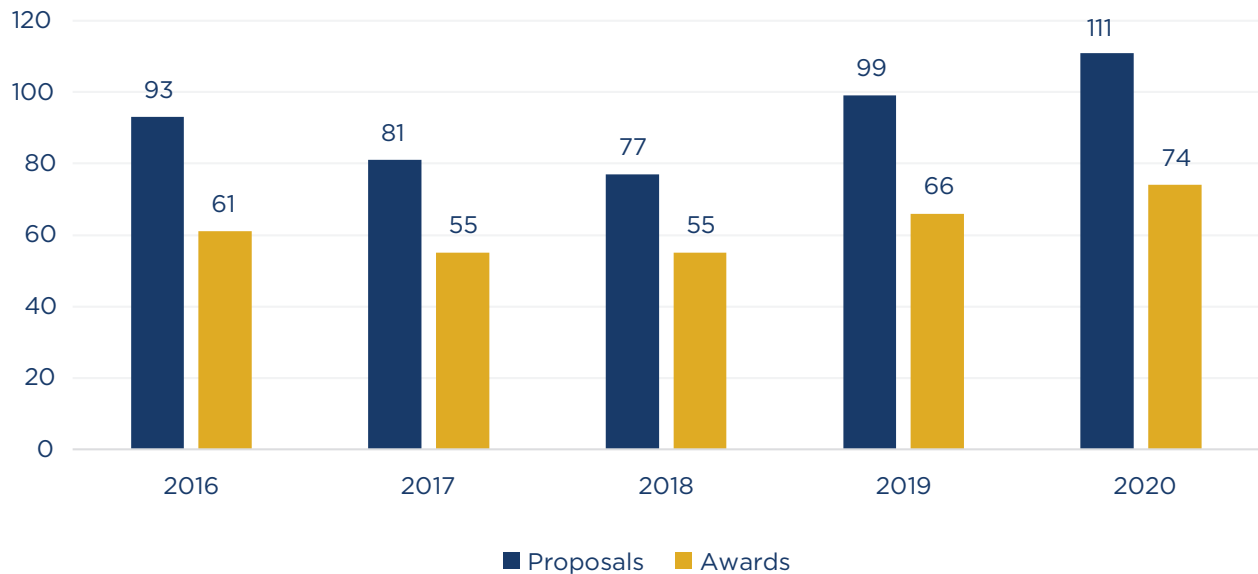
The total award amount excluding the CARES Act funding is an accurate representation of the awards that will continue to support research and sponsored program activities. As such, the award amounts reflected in the remainder of this report exclude the CARES Act funds.

INSTITUTION OVERVIEW

FY16 - 20 PROPOSALS AND AWARDS

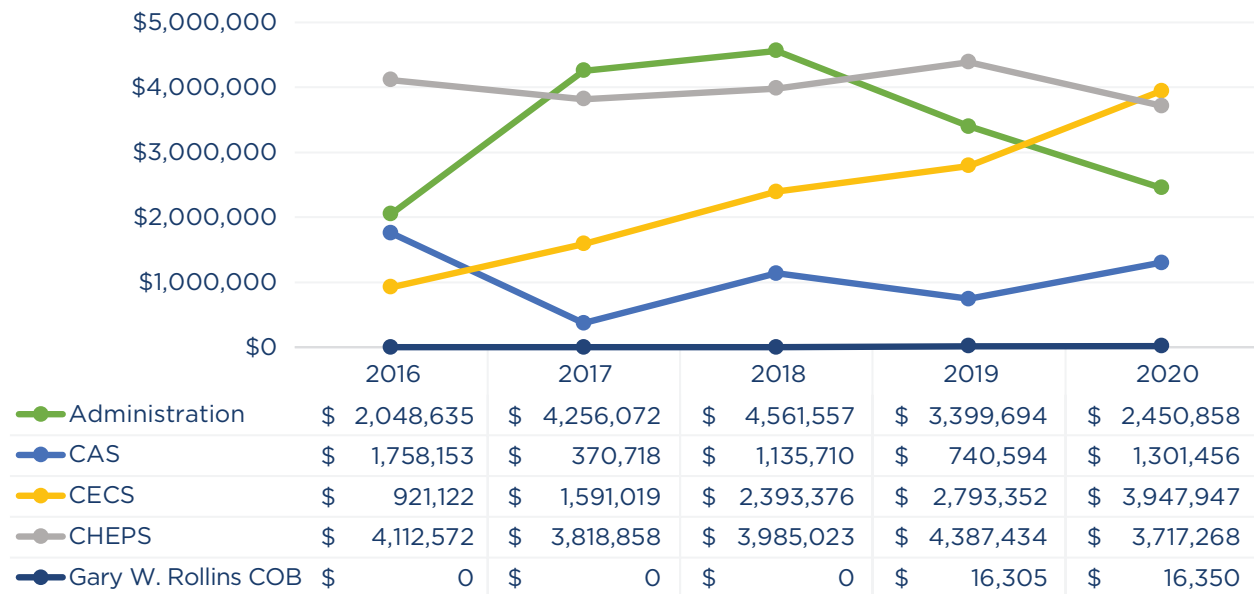


UNIQUE LEAD PRINCIPAL INVESTIGATORS

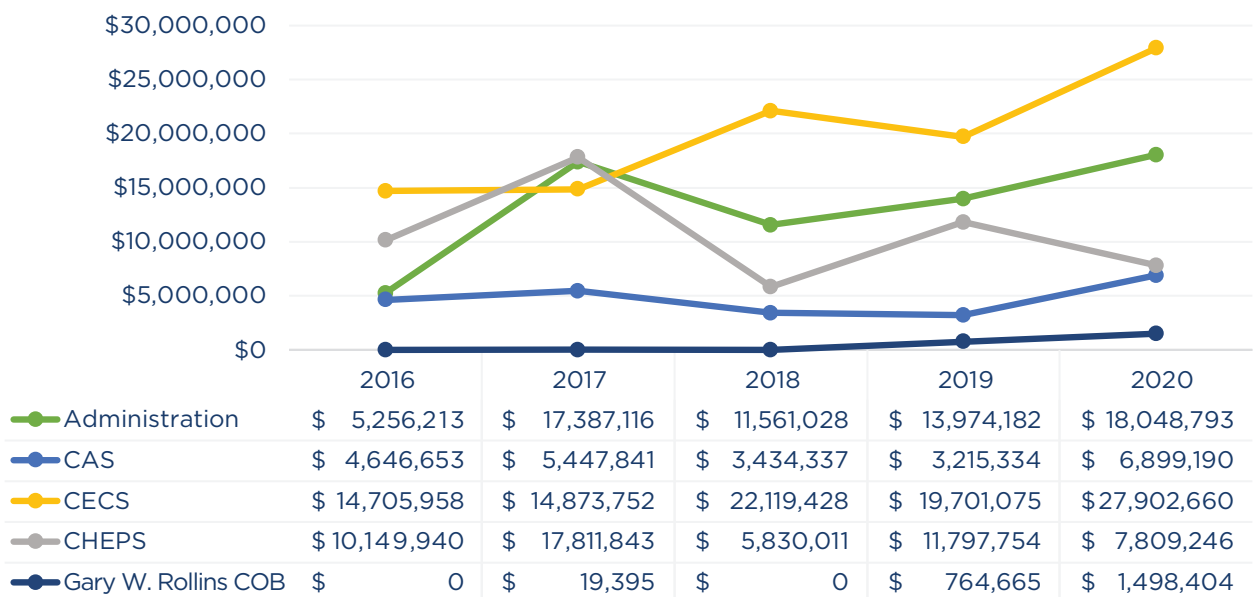


SPONSORED PROGRAM HIGHLIGHTS

FIVE-YEAR TREND - AWARDS

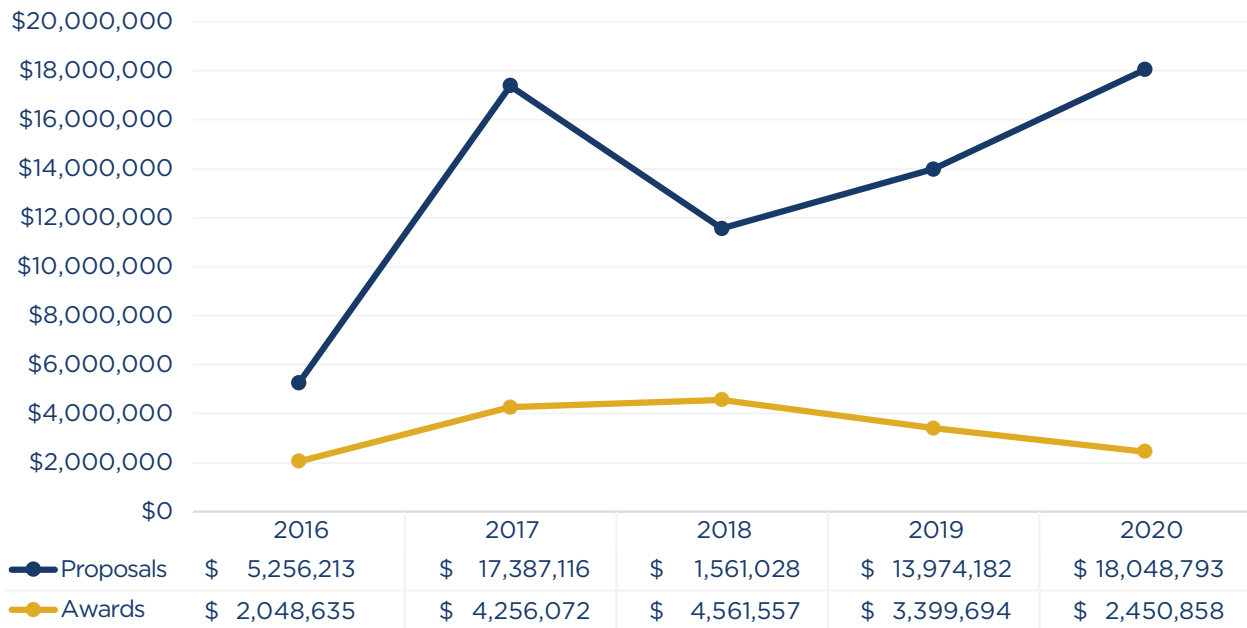


FIVE-YEAR TREND - PROPOSALS

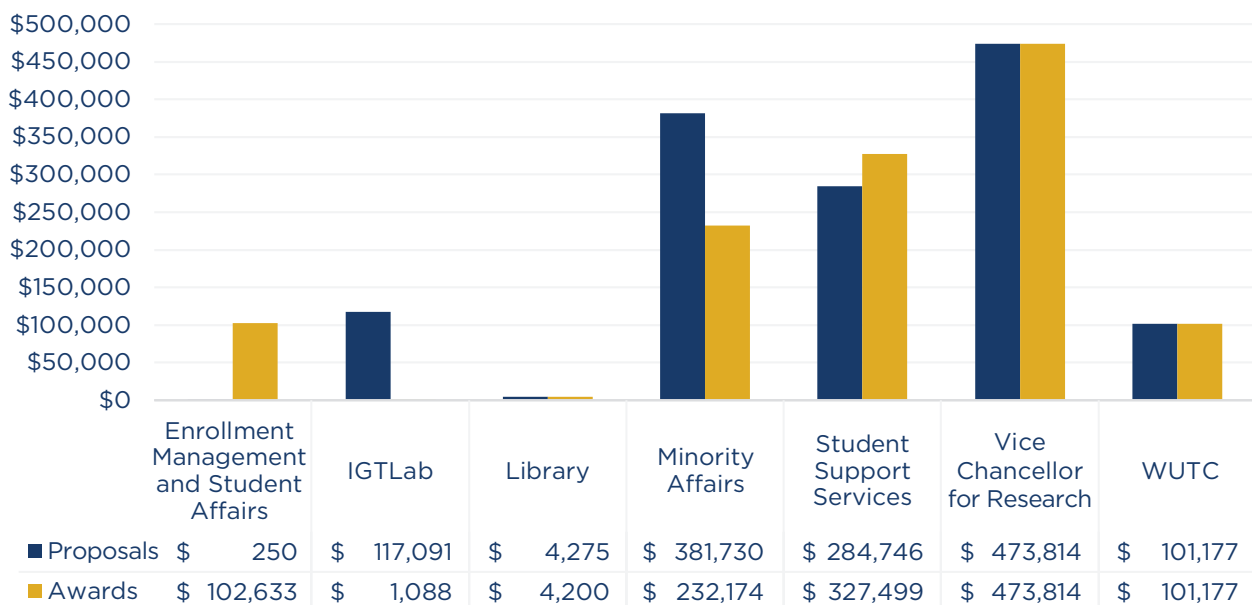


ACADEMIC ADMINISTRATION

FY16 - 20 PROPOSALS AND AWARDS

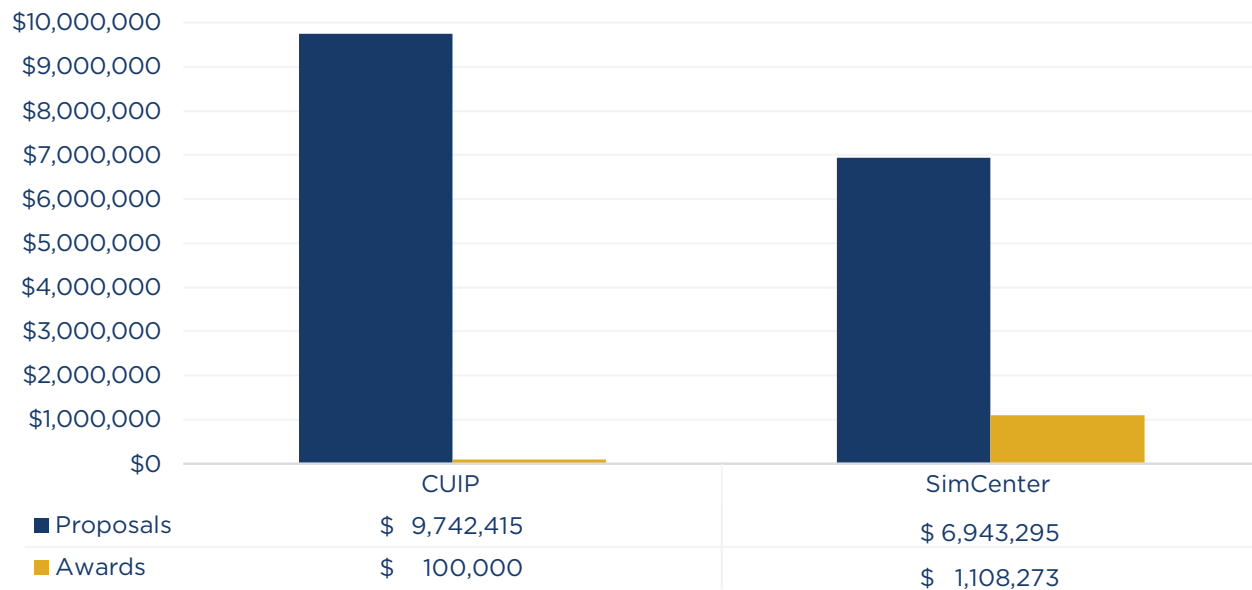


PROPOSALS AND AWARDS BY DEPARTMENT



RESEARCH CENTERS*

PROPOSALS AND AWARDS



*The Research Centers are classified as Administrative departments through the Vice Chancellor of Research for ORSP reporting purposes.

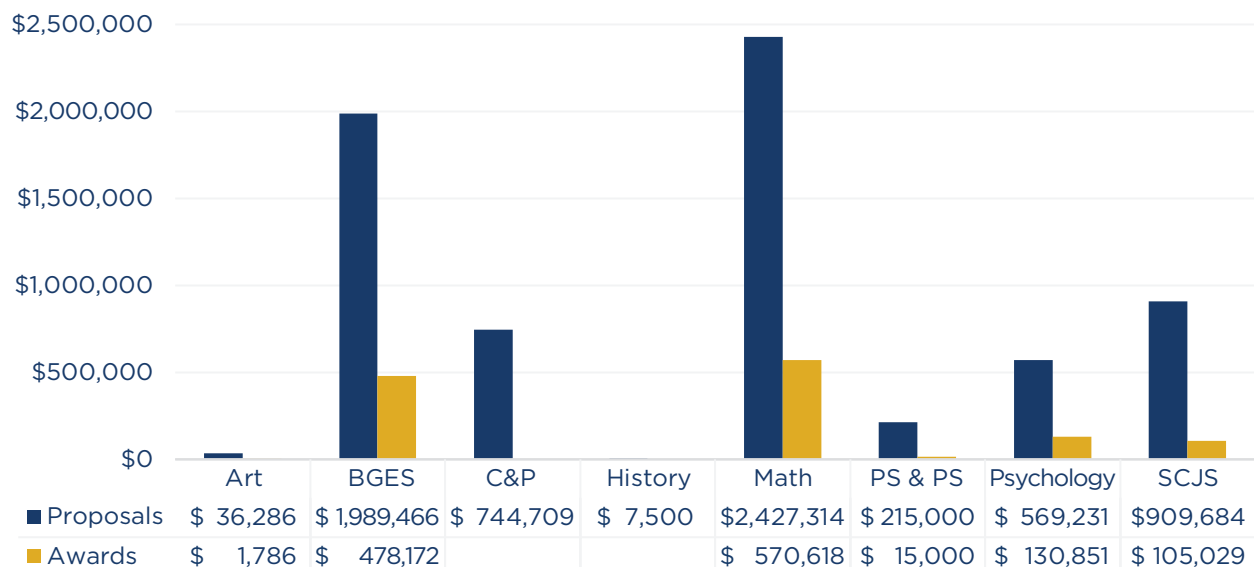
The Center for Urban Informatics and Progress (CUIP), under the leadership of **Dr. Mina Sartipi**, has emerged as a nexus for cross-disciplinary expertise focused on solutions to urban challenges. Dr. Sartipi engaged partners and experts on proposals with a potential value of **\$9.7 million** in FY2020.



SimCenter, led by **Dr. Tony Skjellum**, serves as a research accelerator for advanced modeling and simulation, and acts as UTC's core facility for High-Performance Computing. In FY2020, Dr. Skjellum led 10 different R&D projects and was awarded more than **\$1 million**. Awards affiliated with the SimCenter totaled **\$1.8 million**.

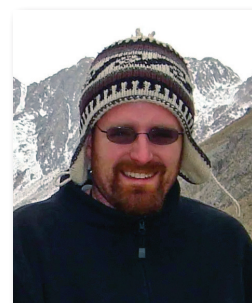
COLLEGE OF ARTS AND SCIENCES

PROPOSALS AND AWARDS BY DEPARTMENT



BGES: Biology, Geology, and Environmental Science; C&P: Chemistry & Physics; PS & PS: Political Science & Public Service; SCJS: Social, Cultural, and Justice Studies

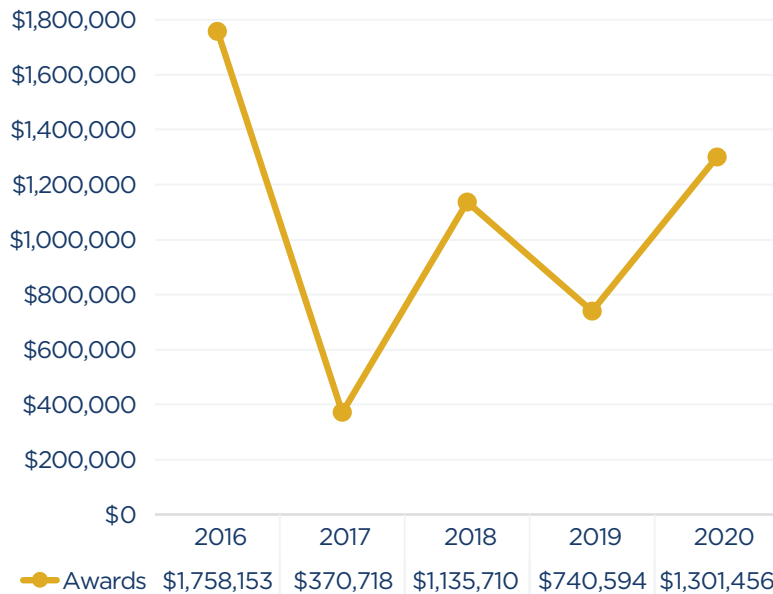
Dr. Loren Hayes (BGES), with co-PIs Drs. Jennifer Ellis (School of Education) and Shewanee Howard-Baptiste (H&HP), led a collaborative team of colleagues in securing an NSF International Research Experiences for Students (IRES) award of **\$263,356**. Funds will support multiple cohorts of student researchers in field-based experiential research in Chile as well as longitudinal studies on the topic of communal breeding among degus.



Dr. Eleni Panagiotou (Mathematics) received an award of **\$125,000** from NSF to support her early-career research in computational methods. Her research interests are focused on the effects of topological entanglement in physical systems. This interdisciplinary effort is trying to solve a geometrical, topological and mechanical problem that has been open for more than 50 years.

COLLEGE OF ARTS AND SCIENCES

Award Trends

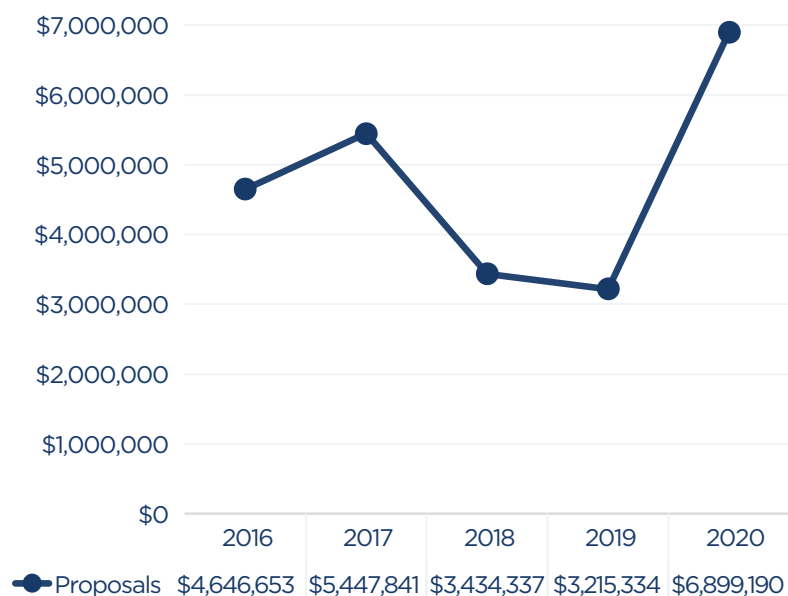


76%

increase in
total award
dollars from
FY19

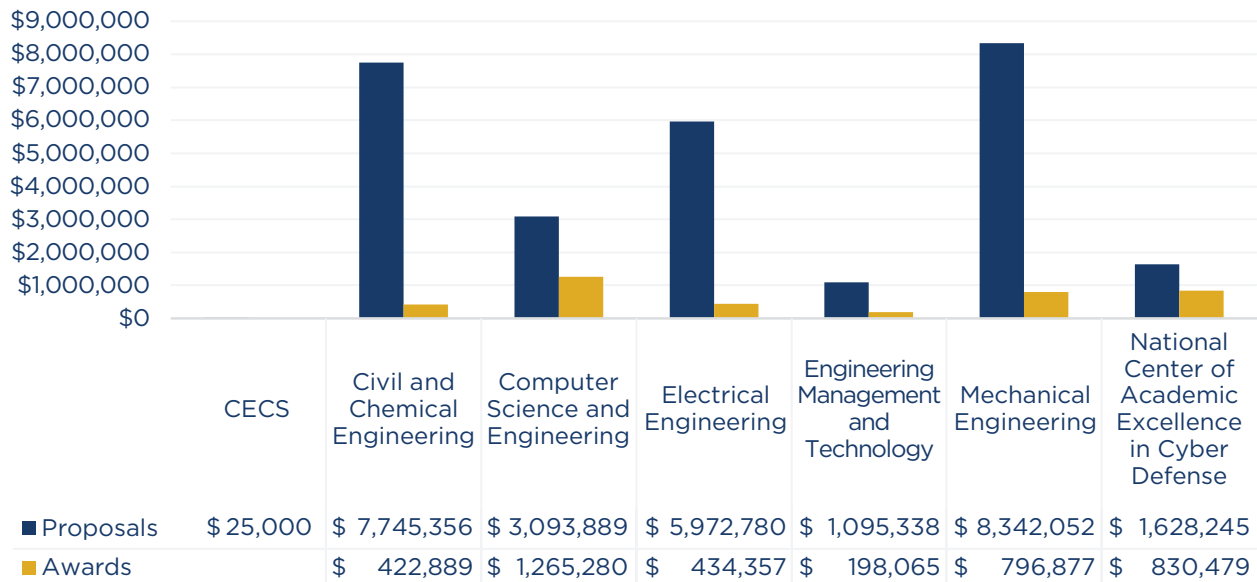
Proposal Trends

115%
increase in
total proposal
dollars
requested
from FY19



COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

PROPOSALS AND AWARDS BY DEPARTMENT



Dr. Mbakisya Onyango (Civil and Chemical Engineering)

secured more than **\$198k** from the Tennessee Department of Transportation to consider climate conditions in pavement design. By providing a framework for climate data source selection, this project helps to enhance the pavement ride quality and serviceability of our roads.

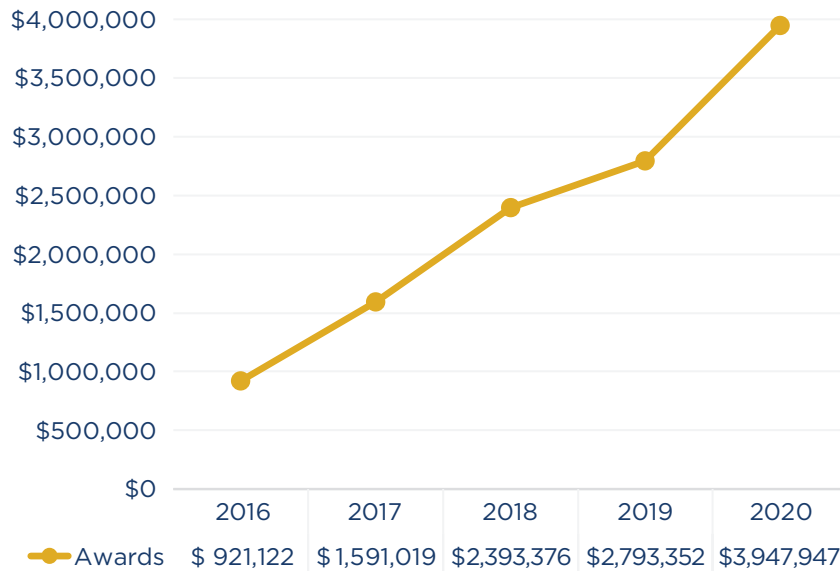


Dr. Yu Liang (Computer Science and Engineering)

brought in more than **\$723k** from the NSF to support the development of an undergraduate curriculum that involves the participation of human beings in every facet of data analytics. This human-machine integration approach focuses on the efficient use of human involvement in machine learning.

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

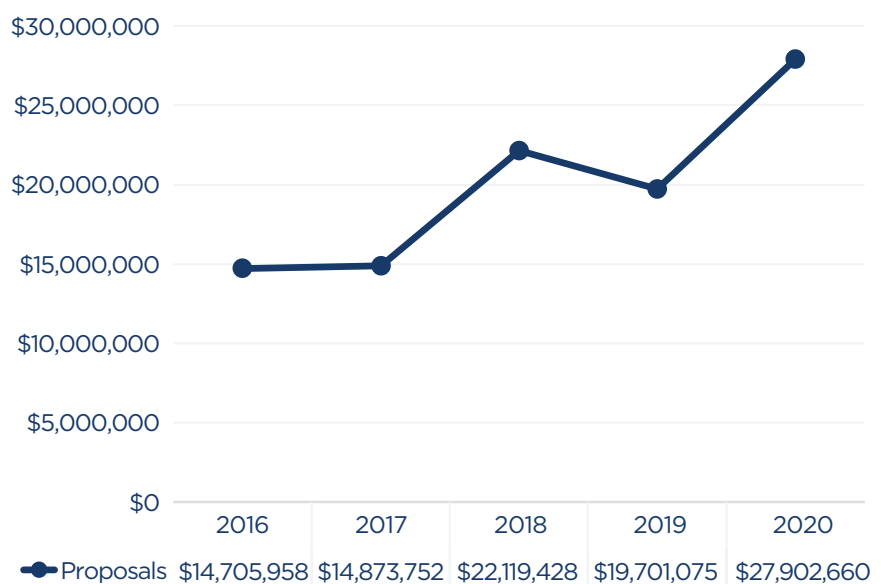
Award Trends



41%
increase in
total award
dollars from
FY19

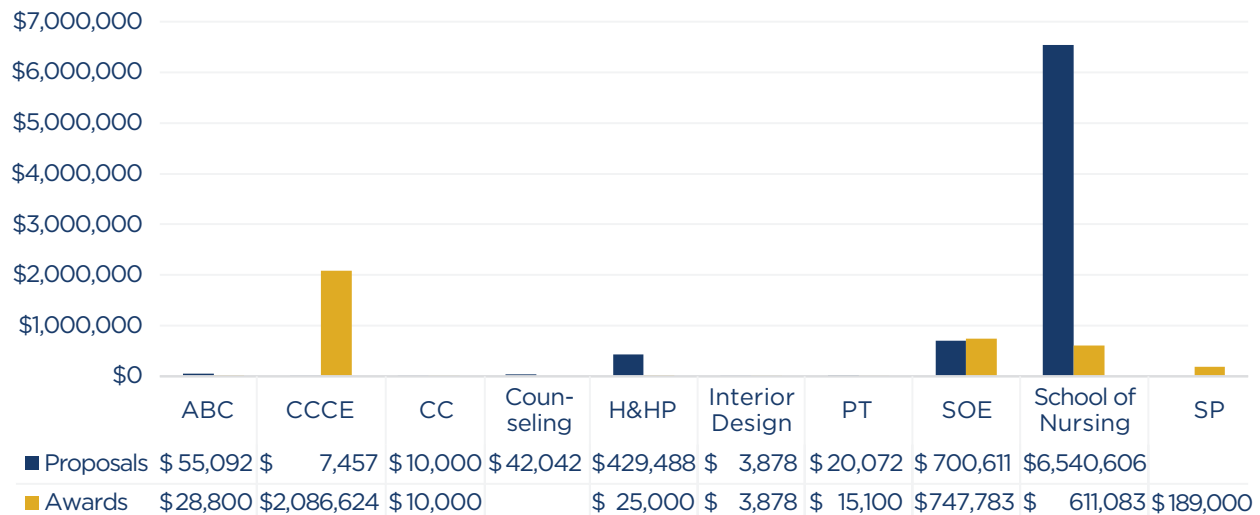
42%
increase
in total
proposal
dollars
requested
from FY19

Proposal Trends



COLLEGE OF HEALTH, EDUCATION AND PROFESSIONAL STUDIES

PROPOSALS AND AWARDS BY DEPARTMENT



ABC: Arts-Based Collaborative; CCCE: Center for Community Career Education; CC: Challenger Center; H&HP: Health & Human Performance; PT: Physical Therapy; SOE: School of Education; SP: School Psychology



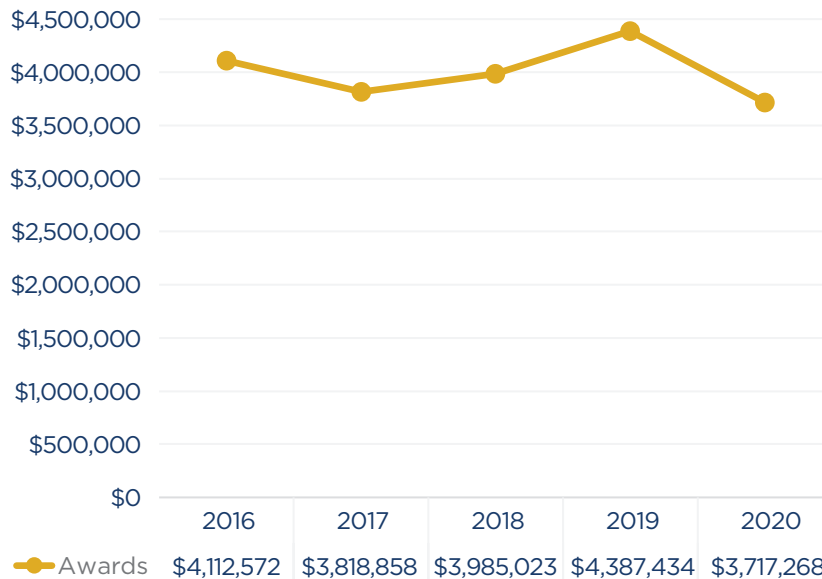
Dr. Renee Murley (School of Education) has received an award of **\$205k** from the Community Foundation of Greater Chattanooga, Inc. to support the Chattanooga Teaching Fellows program. This program provides support to outstanding teacher candidates that are dedicated to future careers serving high-needs schools in Hamilton County.

Dr. Jennifer Ellis (School of Education) has received an award of **\$74k** from the National Science Foundation to support the development of STEM educators in Hamilton County Schools. In partnership with the Public Education Foundation, this grant strengthens the development of STEM master's candidates by providing additional training and professional development as they earn their teaching licensure.



COLLEGE OF HEALTH, EDUCATION AND PROFESSIONAL STUDIES

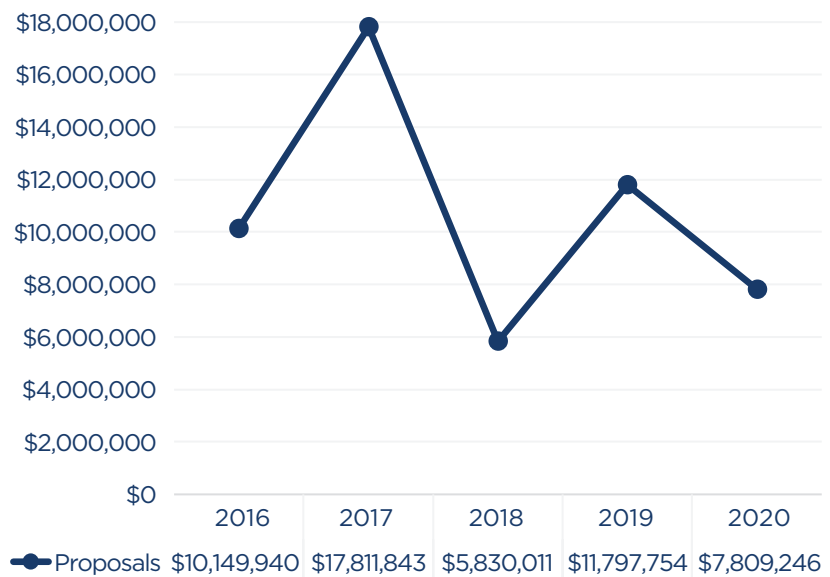
Award Trends



52%
of Awards
contributed
to Instruction
and Public
Service

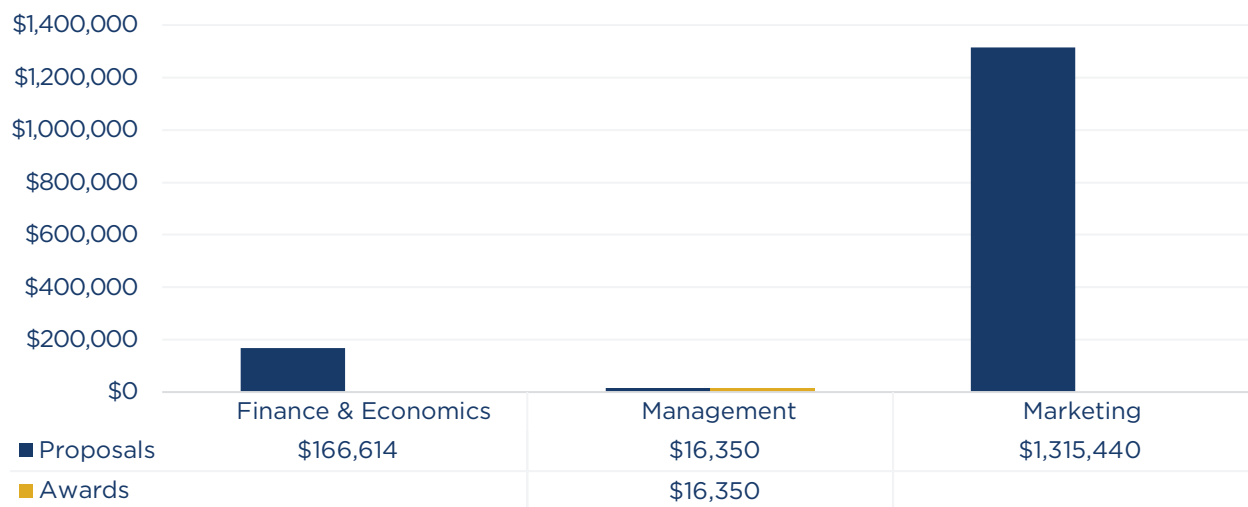
Proposal Trends

35%
of CHEPS
faculty
submitted
two or more
proposals



GARY W. ROLLINS COLLEGE OF BUSINESS

PROPOSALS AND AWARDS BY DEPARTMENT



Dr. Thomas Lyons (Center for Innovation & Entrepreneurship) has submitted a proposal requesting **\$1.3 million** from the U.S. Economic Development Administration to support burgeoning innovators and prospective entrepreneurs. The project aims to support a robust network of entrepreneurial resources, focusing on coaching and mentoring for the long-term success of Chattanooga's start-ups.

Jennifer Skjellum has been named UTC's Commercialization Counselor to promote, encourage, assist, and advise faculty and staff on issues related to intellectual property and commercialization efforts. She has also developed workshop content on the commercialization process, as well as SBIR and STTR funding opportunities, for the innovators at UTC.



Thank you to our research partners!



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INDIVIDUAL AND INTERNAL AWARDS

UTC Faculty earned scholarly awards as individuals:

- Tatianna Allen, *Chemistry & Physics*, from the U.S. Department of Energy
- Fang Yu Hu, *History*, from the American Association of University Women
- Philip Lewis, *Art*, from the Broad Museum, The Heinz Endowments, Fathomers, and Creative Capital
- Stephen Mandravelis, *Art*, from the Southeastern College Art Conference (SECAC)
- Emily Thompson, *Library*, and Katie Hargrave, *Art*, from the Wikimedia Foundation
- Michael Thompson, *History*, from Duke University
- Alexandra Zelin, *Psychology*, from the Society of Psychology for Women

More than \$75,000 in funding bolstered pre-tenure faculty's research portfolios further ensuring success towards promotion and tenure.

Pre-Tenure Research Enhancement Program	Lead Investigator	Total Award Amount
	Annie (Anne) Tracey Samuel, <i>History</i>	\$2,616
	Noah Lasley, <i>Library</i>	\$2,540
	Michelle Evans, <i>Political Science & Public Service</i>	\$5,656
	Chandra Ward, <i>Social, Cultural & Justice Studies</i>	\$9,868
	Kristen Jennings Black, <i>Psychology</i>	\$13,035
	Priscilla Simms-Roberson, <i>School of Nursing</i>	\$7,873
	Christopher Hansen, <i>School of Education</i>	\$11,724
	Lakmali Weeraseena, <i>Mathematics</i>	\$8,779
	Vahid Disfani, <i>Electrical Engineering</i>	\$12,965

More than \$80,000 in funding has supported health research collaborations between UTC and Erlanger/UTCOM.

Biomedical Research Initiation Collaboration	Lead Investigator	Total Award Amount
	David Levine, <i>Physical Therapy</i>	\$7,500
	Erkan Kaplanoglu, <i>Engineering Management & Technology</i>	\$23,492
	Reetesh Ranjan, <i>Mechanical Engineering</i>	\$24,920
	Lani Gao, <i>Mathematics</i>	\$25,000

APPENDIX

Lead Investigator	Total Award Amount	Total Proposal Amount	Lead Investigator	Total Award Amount	Total Proposal Amount
<i>Aborn, David</i>	\$50,000	\$49,999	<i>Guess, Pamela</i>	\$189,000	
<i>Allen, Laurie</i>	\$25,800	\$52,091	<i>Guo, Zibin</i>	\$93,211	\$133,028
<i>Allen, Tatiana</i>		\$24,997	<i>Hanks, June</i>	\$10,100	\$10,100
<i>Arabshahi, Abi</i>	\$42,269	\$1,222,244	<i>Harris, Brad</i>		\$1,139,718
<i>Auchter, Jessica</i>		\$200,000	<i>Hayes, Loren</i>	\$263,356	\$610,809
<i>Barbosa, Jose</i>		\$29,322	<i>Henderson, Tricia</i>	\$99,884	
<i>Bathi, Jejal Reddy</i>		\$24,995	<i>Hill, Linda</i>	\$23,579	\$187,452
<i>Baxley, Joel</i>	\$3,000	\$3,001	<i>Hinkle, Linda</i>	\$2,499	
<i>Beasley, Deanna</i>		\$412,201	<i>Hood, Ralph</i>		\$414,769
<i>Boykin, Twyler</i>	\$287,537		<i>Hossain, Azad</i>		\$194,383
<i>Bridges, Keith</i>	\$302,542		<i>Howell, Ashley</i>	\$19,543	\$19,543
<i>Bulmer, Bryan</i>		\$250	<i>Hu, Fang Yu</i>		\$6,000
<i>Cochran, Lindsey</i>		\$5,134	<i>Huckabay, Hunter</i>	\$751,637	
<i>Cole, Sandra</i>	\$89,257	\$7,457	<i>Hungenberg, Eric</i>	\$25,000	\$25,001
<i>Collier, Angela</i>		\$3,250,000	<i>Ibrahim, Hamdy</i>		\$316,500
<i>Cowden, Chapel</i>	\$4,200	\$4,200	<i>Jackson, Sara</i>		\$25,000
<i>Craddock, Hill</i>	\$4,113	\$4,113	<i>Jain, Hemant</i>	\$16,350	
<i>Cunningham, Chris</i>	\$103,468	\$100,967	<i>Kandah, Farah</i>		\$1,458,336
<i>Danquah, Michael</i>	\$24,935	\$3,112,487	<i>Karrar, Abdelrahman</i>	\$28,340	\$28,341
<i>Deardorff, Michelle</i>	\$15,000	\$15,000	<i>Kendall, Catherine</i>	\$3,878	\$3,878
<i>DeVries, Stephanie</i>	\$16,383	\$37,818	<i>Kim, Jisook</i>		\$398,345
<i>Dierenfeldt, Rick</i>		\$123,650	<i>Klug, Hope</i>	\$119,738	
<i>Disfani, Vahid</i>	\$5,000	\$4,952	<i>Kong, Lingju</i>		\$422,384
<i>Drain, Winston</i>	\$250		<i>Lane, Bryan</i>	\$176,177	\$176,177
<i>Ellington, Lucien</i>	\$82,609	\$106,498	<i>Laseter, Melissa</i>	\$327,499	\$284,746
<i>Elliott, Louie</i>		\$192,216	<i>Leasi, Francesca</i>		\$560,739
<i>Elliott, Trevor</i>		\$2,217,276	<i>Ledoan, Andrew</i>		\$235,408
<i>Ellis, Jennifer</i>	\$368,314	\$373,350	<i>Lee, Belinda</i>	\$347,656	
<i>Forrest, Tyler</i>	\$9,979,820	\$9,980,796	<i>Levine, David</i>	\$5,000	\$9,972

<i>Lewis, Phillip</i>		\$28,500	<i>Romagni, Joanne</i>	\$473,814	\$473,814
<i>Liang, Yu</i>	\$723,641	\$799,695	<i>Sartipi, Mina</i>	\$100,000	\$9,742,415
<i>Loveless, Daniel</i>	\$267,958	\$633,012	<i>Schorr, Mark</i>		\$36,000
<i>Lyons, Thomas</i>		\$1,315,440	<i>Shaw, Joey</i>	\$12,500	\$42,001
<i>Mandravelis, Stephen</i>	\$1,786	\$7,786	<i>Shelton, Jill</i>	\$7,840	\$8,952
<i>Mathis, Tara</i>	\$232,174	\$381,730	<i>Simms-Roberson, Priscilla</i>	\$5,000	\$5,000
<i>McAllister, Deborah</i>	\$31,829	\$35,192	<i>Simoni, Zachary</i>		\$400
<i>McLean, Aldo</i>		\$18,405	<i>Sisworahardjo, Nurhidajat</i>	\$16,394	\$16,393
<i>Middleton, Catherine</i>		\$166,614	<i>Skjellum, Anthony</i>	\$1,064,598	\$4,289,040
<i>Mies, Jonathan</i>	\$5,000	\$4,999	<i>Smith, Christine</i>		\$3,249,900
<i>Mix, Charlie</i>	\$1,088	\$117,091	<i>Smith, Morgan</i>		\$248,619
<i>Murley, Renee</i>	\$265,271	\$60,571	<i>Spratt, Henry</i>	\$7,082	\$7,082
<i>Newman, James</i>	\$737,078	\$535,125	<i>Sreenivas, Kidambi</i>	\$59,799	\$59,799
<i>O'Brien, Elizabeth</i>		\$42,042	<i>Storey, Perry</i>	\$10,000	\$10,000
<i>Ofoli, Abdul</i>	\$58,415	\$58,340	<i>Tantawi, Khalid</i>	\$198,065	\$1,076,933
<i>Onyango, Mbakisya</i>	\$198,680		<i>Thompson, Emily</i>		\$75
<i>Osman, Osama</i>		\$2,017,190	<i>Thompson, Michael</i>		\$1,500
<i>Owino, Joseph</i>	\$199,274		<i>Vann, Karen</i>	\$307,995	
<i>Ozcelik, Ilker</i>		\$133,296	<i>Wang, Jin</i>	\$445,618	\$482,427
<i>Pack, Daniel</i>	\$58,250	\$2,176,361	<i>Ward, Chandra</i>		\$144,949
<i>Palchoudhury, Sou</i>		\$1,008,355	<i>Weeraseena, Lakmali</i>		\$456,287
<i>Panagiotou, Eleni</i>	\$125,000	\$837,486	<i>Wick, Kristina</i>	\$21,230	\$35,706
<i>Park, Han Jung</i>		\$9,720	<i>Wigal, Cecelia</i>		\$4,622,856
<i>Persons, Brooke</i>	\$11,818	\$212,584	<i>Wilkerson, Gary</i>		\$396,064
<i>Pienkos, Jared</i>		\$304,519	<i>Wingate, Kimberly</i>		\$125,000
<i>Policastro, Christina</i>		\$41,320	<i>Wu, Dalei</i>		\$599,912
<i>Qin, Hong</i>	\$619,135	\$1,479,916	<i>Xie, Mengjun</i>		\$1,104,517
<i>Ranjan, Reetesh</i>		\$398,280	<i>Yang, Li</i>		\$578,473
<i>Reising, Donald</i>		\$3,055,381	<i>Yang, Sungwoo</i>		\$442,611
<i>Roache, Amber</i>	\$561,283		<i>Zelin, Alexandra</i>		\$25,000
			Grand Total	\$21,488,699	\$72,214,089