



# 2018

**UTSA**

The University of Texas at San Antonio  
Office of the Vice President for  
Research, Economic Development,  
and Knowledge Enterprise

**ANNUAL REPORT**

Annual Report of Sponsored Program Activities for the fiscal year ending August 31, 2018.

**The University of Texas at San Antonio  
The Office of the Vice President for Research, Economic  
Development, and Knowledge Enterprise**

**Taylor Eighmy, Ph.D.**  
President

**Bernard Arulanandam, Ph.D., M.B.A.**  
Interim Vice President for Research, Economic  
Development, and Knowledge Enterprise

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Revised 2018. Data sources include: Research Support,  
Commercialization and Innovation, Research Administration, and  
Research Finance and Operations. All financial data has been  
rounded to the nearest dollar. Contributors Include:

**Neal Guentzel, Ana Laredo,  
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**Associate Deans for Research**

**Suat Gunhan, Ph.D.**  
College of Architecture, Construction & Planning

**Hamid Beladi, Ph.D.**  
College of Business

**Michael Karcher, Ph.D.**  
College of Education and Human Development

**David Akopian, Ph.D.**  
College of Engineering

**Sandra Morissette, Ph.D.**  
College of Liberal and Fine Arts

**Robert Tillyer, Ph.D.**  
College of Public Policy

**Janakiram Seshu, Ph.D.**  
Graduate School

**Floyd Wormley, Ph.D.**  
College of Science



Welcome to our annual report for fiscal year ending August 31st, 2018, focused on the research and economic activities of the faculty, students, staff, and partners at The University of Texas at San Antonio (UTSA).

Under the leadership of a new president, **Dr. Taylor Eighmy**, who has envisioned a bright and bold future for UTSA, our team continues to serve the needs of our research community as it has expanded dramatically. With the amalgamation of the Research Office with the Institute of Economic Development (IED), we have combined our strengths and capabilities to focus on the institution's mission to drive San Antonio's knowledge economy,

The past year was one of steady growth and expansion for the research community. In fiscal year 2017-2018, total research expenditures increased to US \$69.6 million, with the university's restricted research expenditures growing to US \$44.1 million. In total, 303 new awards were received in FY2018, worth \$54.1 million. Research expenditures are on target to meet National Research University Fund (NRUF) eligibility and Carnegie Research 1 status [as explained on the following page].

It was a record breaking year for the IED. In 2018, the IED served 43,320 existing and aspiring entrepreneurs, generating a total of \$2.9 billion in direct economic impact. Of those who received advising, training and business research assistance, over 1,000 businesses were started or experienced significant growth, resulting in the creation or retention of close to 20,000 jobs. Additionally, these businesses generated \$291 million in new financing and \$35 million in new tax revenue, with new sales, contracts and exports valued at \$2.6 billion dollars.

Our faculty, students, administrators and collaborators who are committed to discovery each and every day; we thank you for your contribution in achieving our highest results to date.

We want to encourage all, from incoming freshmen to the most seasoned faculty members, to engage in the knowledge enterprise and reach out to us for support and guidance. We are here to serve you.

As always, we welcome your feedback on all of our activities.

Regards,  
**Bernard Arulanandam, Ph.D., MBA**  
Interim Vice President for Research, Economic Development,  
and Knowledge Enterprise

# Research Excellence

Committed to the guiding principal that great universities need great cities and great cities need great universities, UTSA is on the fast track to becoming a nationally-recognized multicultural discovery enterprise.

With a bold mandate from our president, our goal has been to aggregate the various initiatives and launch new activities to increase national and international recognition of UTSA as an institution of research excellence and to reach status as a research-intensive University. Success is measured by the criteria set forth by both by the National Research University Fund and the Carnegie Classification system. Strategies are focused on increasing the institution's annual research expenditures; expanding the pipeline and managing the success of our doctoral students; supporting UTSA's faculty to achieve national research recognitions; and recruiting National Academy members to UTSA.

## NRUF Criteria

The National Research University Fund was established by the Texas Legislature in 2009 "to provide a dedicated, independent, and equitable source of funding to enable emerging research universities in this state to achieve national prominence as major research universities."

An institution is eligible for the fund once they meet the benchmarks in the following categories. The first two are mandatory.

1. Designated as an emerging research university in the Coordinating Board's accountability system
2. Have expenditures of at least \$45 million in restricted research minus the institution's F&A (Facilities and Administrative) costs
3. Comply with **five** of the following:

Criteria	As of 8/31/2018	Target
Restricted Research Expenditures	<b>\$44M</b>	<b>\$55M+</b>
Endowments	<b>\$152M</b>	<b>\$400M+</b>
Faculty in National Academies	<b>1</b>	<b>5</b>
Faculty Prestigious Awards	<b>2</b>	<b>&gt;7</b>
Ph.D.s Awarded Annually	<b>140</b>	<b>200</b>
Freshman Class of High Academic Achievement	✓	✓
Institutional Recognition of Research Capabilities and Scholarly Attainment	✓	✓

## Carnegie Classification

UTSA is currently classified as an R2 "High research activity" institution by the Carnegie Classification of Institutions of Higher Education. Our goal is to be classified as an R1 Research Intensive University.

This particular classification is focused primarily on:

1. Research expenditures generated by STEM research activity
2. Research expenditures generated by Non-STEM research activity
3. Number of doctoral degrees produced yearly in the fields of STEM, humanities, social sciences and other professional fields.
4. Number of postdoctorates and non-faculty research staff with doctorates.

Criteria	Reporting Year 2015 *every 3 years	Reporting Year 2018 *every 3 years
STEM R&D Expenditures	<b>\$42.3M</b>	<b>\$64.1M</b>
Non-STEM R&D Expenditures	<b>\$4.7M</b>	<b>\$6M</b>
Ph.D.s Awarded Annually	<b>106</b>	<b>126</b>
Postdocs/ Research Staff	<b>57</b>	<b>85</b>

# EXPENDITURES

## Expenditure Summary

FY 2018

**\$44.05M**

» Restricted

**\$25.54M**

» Unrestricted

**\$29.82M**

» Federal

**\$11.94M**

» General

**\$14.22M**

» Non-Federal

**\$13.60M**

» Designated

Total

Research Expenditures

---

**\$69.59M**

# Top 5 Largest Awards

1

**Ravi Sandhu**, Institute for Cyber Security (ICS) COS  
**Nicole Beebe**, Cyber Center for Security and Analytics (CCSA) COB  
**Jeff Prevost**, Open Cloud Institute (OCI) COE  
**Guadalupe Carmona-Dominguez**, College of Education and Human Development  
**Ram Krishnan**, College of Engineering  
*CREST Center for Security and Privacy Enhanced Cloud Computing (C-SPECC)*  
**National Science Foundation | \$5,000,000**

2

**Gregory White**, College of Sciences  
**Nicole Beebe**, Cyber Center for Security and Analytics (CCSA) COB  
*Renewal of the Scholarship for Service Program*  
**National Science Foundation | \$3,737,836**

3

**Charles Wilson**, Neurosciences Institute (NI) COS  
*Oscillations and Resonance in Basal Ganglia Circuits*  
**NIH National Institute of Neuro Disorder/Stroke | \$3,307,503**

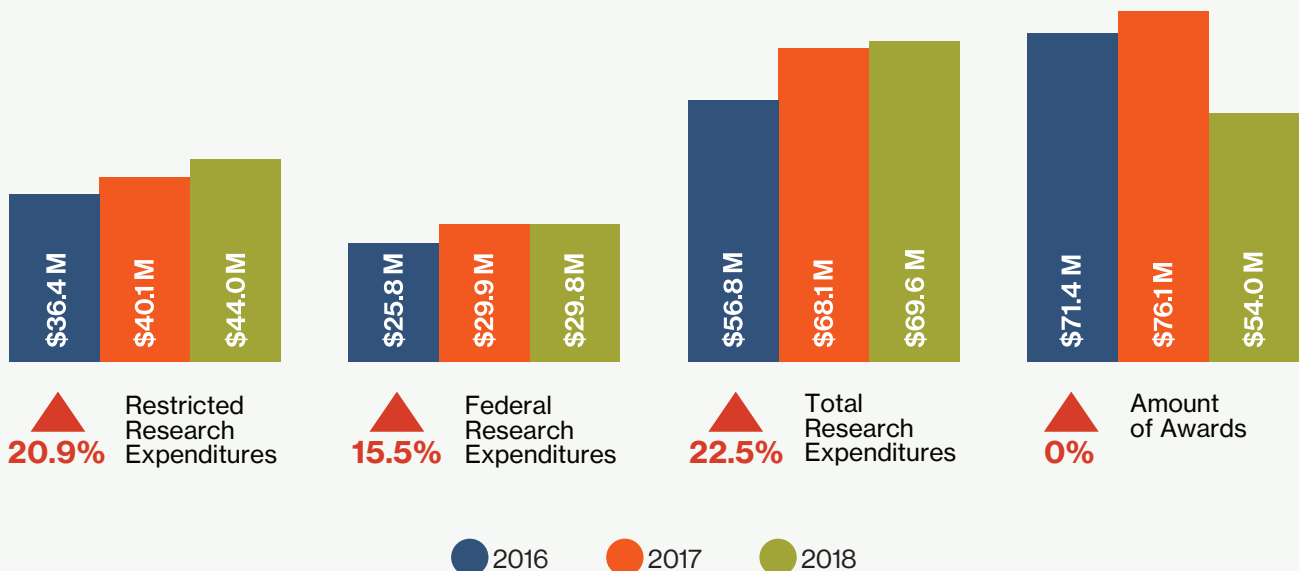
4

**Zenong Ying**  
**Erica Sosa**  
**Meizi He**  
 College of Education and Human Development  
*Obesity Prevention in Head Start: The Maranos! Program*  
**National Institutes of Health | \$3,154,923**

5

**Gregory White**  
**Natalie Granado**  
 Center for Infrastructure Assurance and Security (CIAS)  
*State and Community Coordinated Cybersecurity Training*  
**US Dept of Homeland Security | \$3,015,000**

# Restricted, Federal, and Total Research Expenditures and Total Awards



## EXPENDITURES

# Research Expenditure *Breakdown by College/Unit*

College	Amount
Architecture, Construction, and Planning (CACP)	<b>\$0.62M</b>
Business (COB)	<b>\$4.25M</b>
Education & Human Development (COEHD)	<b>\$4.91M</b>
Engineering (COE)	<b>\$13.60M</b>
Liberal & Fine Arts (COLFA)	<b>\$4.45M</b>
Public Policy (COPP)	<b>\$1.86M</b>
Sciences (COS)	<b>\$33.16M</b>
Honors College	<b>\$0.02M</b>
University (UNIV)	<b>\$2.91M</b>
VP Academic Affairs (VPAA)	<b>\$1.21M</b>
VP Research, Economic Development, and Knowledge Enterprise (VPREDKE)	<b>\$2.17M</b>
Other (VPSS, VPSE, VPBA, VPEA)	<b>\$0.42M</b>
<b>Total</b>	<b>\$69.59M</b>

## EXPENDITURES

# Research Expenditure *Breakdown by Research Centers & Institutes*

College	Amount
Center for Infrastructure Assurance and Security (CIAS)	<b>\$3.73M</b>
South Texas Center for Emerging Infectious Diseases (STCEID)	<b>\$3.54M</b>
Center for Research and Training in the Sciences (CRTS)	<b>\$2.54M</b>
Neurosciences Institute (NI)	<b>\$2.35M</b>
Center for Innovation and Drug Discovery (CIDD)	<b>\$1.87M</b>
Institute for Demographic and Socioeconomic Research (IDSR)	<b>\$1.07M</b>
Texas Sustainable Energy Research Institute (TSERI)	<b>\$1.06M</b>
Institute for Cyber Security (ICS)	<b>\$1.05M</b>
Center for Simulation Visualization and Real Time Prediction (SiViRT)	<b>\$0.97M</b>
Institute for Health Disparities Research (IHDR)	<b>\$0.79M</b>
Center for Archeological Research (CAR)	<b>\$0.79M</b>
Open Cloud Institute (OCI)	<b>\$0.71M</b>
Center for Education and Research in Information and Infrastructure Security (CERI2S)	<b>\$0.61M</b>
Center for Research and Policy in Education (CRPE)	<b>\$0.40M</b>
San Antonio Cellular Therapeutics Institute (SACTI)	<b>\$0.38M</b>
Center for Cultural Sustainability (CCS)	<b>\$0.24M</b>
Center for Advanced Manufacturing & Lean Systems (CAMLS)	<b>\$0.24M</b>
Center for Water Research (CWR)	<b>\$0.21M</b>
Center for the Inquiry of Transformative Literacies (CITL)	<b>\$0.13M</b>
Bank of America Child and Adolescent Policy Research Institute (BACAPRI)	<b>\$0.13M</b>
Center for Urban and Regional Planning Research (CURPR)	<b>\$0.10M</b>
Team Autism Research Center (ARC)	<b>\$20,266</b>
Water Institute of Texas (WIT)	<b>\$2,123</b>
<b>Total</b>	<b>\$22.92M</b>

## AWARDS

# College Awards

### NUMBER OF AWARDS BY COLLEGE

College	FY 2018
Architecture, Construction, and Planning (CACP)	12
Business (COB)	23
Education & Human Development (COEHD)	38
Engineering (COE)	65
Liberal & Fine Arts (COLFA)	52
Public Policy (COPP)	11
Sciences (COS)	70
University College (UNIV)	2
VP Research, Economic Development, and Knowledge Enterprise (VPREDKE)	18
VP Strategic Enrollment (VPSE)	7
Other (VP Academic Affairs, VP Business Affairs, Library)	5
<b>Total</b>	<b>303</b>

# AWARDS

## College Awards

### AMOUNT AWARDED BY COLLEGE

College	FY 2018
Architecture, Construction, and Planning (CACP)	\$0.39M
Business (COB)	\$1.55M
Education & Human Development (COEHD)	\$4.94M
Engineering (COE)	\$6.98M
Liberal & Fine Arts (COLFA)	\$4.12M
Public Policy (COPP)	\$0.85M
Sciences (COS)	\$26.68M
University College (UNIV)	\$0.74M
VP Research, Economic Development, and Knowledge Enterprise (VPREDKE)	\$5.47M
VP Strategic Enrollment (VPSE)	\$1.66M
Other (VP Academic Affairs, VP Business Affairs, Library)	\$0.66M
<b>Total</b>	<b>\$54.05M</b>

### AWARD PERCENTAGE

BY COLLEGE



- 0.7% CACP
- 2.9% COB
- 9.2% COEHD
- 12.9% COE
- 7.6% COLFA
- 1.6% COPP
- 49.4% COS
- 1.4% UNIV
- 10.1% VPREDKE
- 3.1% VPSE
- 1.2% Other (VPAA, VPBA, Library)

# PROPOSALS

## Proposal Submissions

### SUBMISSION BY SPONSOR TYPE

Sponsor Type	Submitted Requests
Federal Government	374
State Government	160
Private	188
Federal Pass Through	137
Foundation	12
Local Government	32
Other Government	7
Business	4
Development & Gifts	6
Development & Gifts for Endowments	1
<b>Total</b>	<b>921</b>

### SUBMISSION PERCENTAGE

BY SPONSOR TYPE



- 40.5% Federal Government
- 17.4% State Government
- 20.5% Private
- 15.0% Federal Pass Through
- 1.2% Foundation
- 3.5% Local Government
- 0.7% Other Government
- 0.4% Business
- 0.7% Development & Gifts
- 0.1% Development & Gifts for Endowments

# PROPOSALS

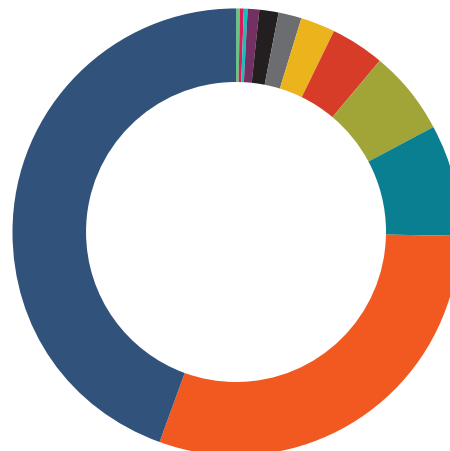
## Proposal Submissions

### SUBMISSION BY COLLEGE

College	Submitted	Amount Requested
Architecture, Construction, and Planning (CACP)	26	<b>\$1.31M</b>
Business (COB)	59	<b>\$13.88M</b>
Education & Human Development (COEHD)	95	<b>\$30.19M</b>
Engineering (COE)	287	<b>\$111.18M</b>
Liberal & Fine Arts (COLFA)	83	<b>\$22.31M</b>
Public Policy (COPP)	21	<b>\$5.17M</b>
Sciences (COS)	301	<b>\$163.23M</b>
Other (VPAA, VPBA, VPSE)	17	<b>\$5.86M</b>
Graduate School	2	<b>\$0.21M</b>
VP Research, Economic Development, and Knowledge Enterprise (VPREDKE)	21	<b>\$9.18M</b>
Library	2	<b>\$3.04M</b>
University College (UNIV)	7	<b>\$1.20M</b>
<b>Total</b>	<b>921</b>	<b>\$366.76M</b>

### SUBMISSION PERCENTAGE

BY COLLEGE



- 0.4% CACP
- 3.8% COB
- 8.2% COEHD
- 30.3% COE
- 6.1% COLFA
- 1.4% COPP
- 44.5% COS
- 0.3% UNIV
- 2.5% VPREDKE
- 0.8% Library
- 1.6% Other (VPAA, VPBA, VPSE)
- .06% Graduate School

# Office of Commercialization & Innovation

The Office of Commercialization and Innovation (OCI), continued to expand UTSA's commercialization programs, build partnerships with industry and the grow the innovation ecosystem. The number of NSF Innovation Corps (I-Corps) teams participating at the national level doubled over the previous two years combined, with six teams advancing to further refine their business models for their new technologies, putting UTSA in the top 6 percent of participating institutions. The office also recognized 30 members of the UTSA research community at their annual Innovation Awards.

## 2017 Innovator of the Year

UTSA mechanical engineer **Bing Dong** was named the 2017 UTSA Innovator of the Year, in recognition of his drive to develop and launch the startup Leaptran in order to provide a way to make buildings more energy efficient and responsive to their occupants. His lab, Built Environment Science & Technology/BEST, is interdisciplinary, combining mechanical engineering, artificial intelligence, electrical engineering, and social science research. In 2017, he received the UTSA Faculty Research Award for Highest Funding as Principal Investigator and a Distinguished Service Award from the International Energy Agency.

## Smart city innovation, Leaptran, Inc., launches out of UTSA

A spinout from OCI, Leaptran, Inc., is bringing to market products that will optimize whole building energy use while providing room-level comfort for individuals. Using artificial-intelligence and smart building features, these integrated hardware and software products will optimize energy use among micro-grid distributed energy resources (DERs) such as solar power generation and battery energy storage systems (BESS).

Leaptran's technologies are licensed from UTSA and are based on co-founder and UTSA Assistant Professor **Bing Dong's** more than ten years of research in building energy efficiency, occupant behavior, big data analytics, intelligent building operation and optimization, measurement and verification, and buildings-to-grid integration research. Recent UTSA Entrepreneur-in-Residence and energy storage expert, **Jeff Xu**, founder of Leaptran, identified and evaluated these technologies and recognized their synergy with his skills as a great commercial opportunity.

Through UTSA, the Leaptran team received a \$50,000 award to participate in the National Science Foundation's I-CorpsTM program to optimize their product and market development focus. Whilst as a UTSA New Venture Incubator member, they then landed a SBIR Phase I award of \$149,991, funded by the Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) through the Small Business Innovation Research (SBIR) program.



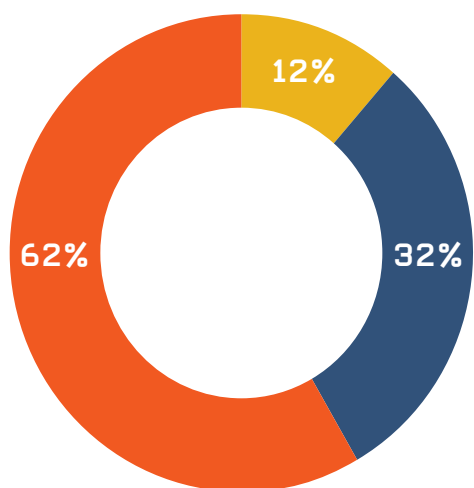
# Commercialization Activity Summary

Technology innovation and commercialization are major focuses of the UT System and other Tier One universities throughout the state and nation. The office establishes UTSA procedures and policies for technology transfer and commercialization, and provides training to faculty, staff, and students. It also spearheads a commercialization council that connects UTSA with regional technology commercialization partners.

Activity	FY 14	FY 15	FY 16	FY 17	FY 18
Commercial Agreements (Contract, SRA, MOU, NDA, & MTA)	84	105	143	109	102
New Invention Disclosures	56	41	53	62	51
Patents Filed	75	69	71	53	67
Copyrights & Trademarks	3	3	4	1	3
New License/Options Signed	5	7	3	8	6
Technologies Licensed/Optioned	8	7	3	10	7
Companies Incubated (New Venture Incubator)	15	15	15	7	7

## 5-YEAR ('14-'18) INVENTION DISCLOSURES

BY COLLEGE

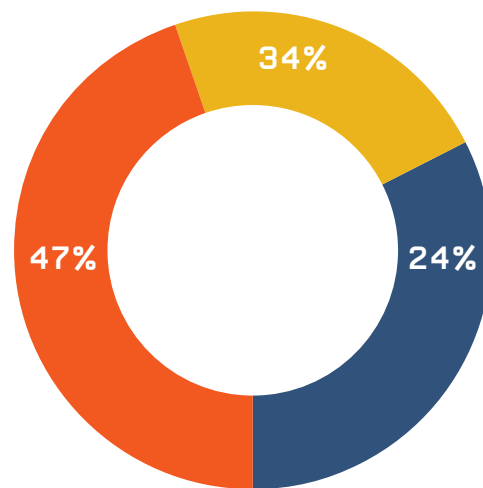


● College of Engineering

● College of Sciences

## 2018 INVENTION DISCLOSURE BY COLLEGE

BY COLLEGE



● Other (All other UTSA college units)

# Innovation Disclosures

*An automated system designed for cancer detection and Gleason scoring of different cancer tissue using artificial intelligence*

**Sos Agaian, Foram Mahendra Sanghavi**  
**COE Electrical & Computer Engineering**

*A proposed system that allows for efficient development of data collection and intervention campaigns by researchers*

**David Akopian, Sahak Igor Kaghyan, Jafet Aaron Morales, Devasena Inupakutika, Girish Natarajan**  
**COE Electrical & Computer Engineering**

Non-UTSA Inventor: **Deborah Parra-Medina**

*A pneumatic air technology application integrated into a knee brace*

**Alejandra Barraza, Paola Natalya Casas, Alejandro Lucio Betancourt**  
**COE Biomedical Engineering**

*A technique to design a data system for applications to detect surface conditions for roads or pavements*

**Shuza Binzaid, Wasim Hafiz Dipun**  
**COE Electrical & Computer Engineering**

*A low-cost method to provide a significant enhancement of polarization ratio and high power tolerance polarizers*

**Andrey Chabanov**  
**COS Physics & Astronomy**

Non-UTSA Inventors: **Ilya Vitebskiy, Igor Anisimov, Nicholaos Limberopoulos, Carl Pfeiffer**

*A material that excludes ethane from ethylene under ambient condition*

**Banglin Chen, Ruibiao Lin**  
**COS Chemistry**

*A streamlined protocol process that gains deeper insight into data with little effort*

**Kim Kwang Raymond Choo, Naga Vempkala, Zhechao (Charles) Liu**  
**COB Information Systems & Cyber Security**

*A protocol that can ensure the security of data communication*

**Kim Kwang Raymond Choo**  
**COB Information Systems & Cyber Security**

Non UTSA Inventor: **Debiao He**

*An efficient and secure two-party distributed signing protocol to ensure the security of communication*

**Kim Kwang Raymond Choo**  
**COB Information Systems & Cyber Security**

Non UTSA Inventor: **Debiao He**

*A mobile rehabilitation application that provides metrics for better understanding of a patient's condition*

**Delano Covarrubias, Alexander Paul, Cynthia Perez**  
**COB Finance**

*An integration method that reduces energy cost, and load variation for residential buildings*

**Bing Dong, Amin Mirakhorli**  
**COE Mechanical Engineering**

*A device that is used to increase the performance of football blocking techniques*

**Michael David Erwin, Ari Andrew Richtberg, Zachary Daniel McKee, Stephanie Morgan Meier**  
**COE Mechanical Engineering**

*An improved handpiece design for a novel emergency medical suction device*

**Yusheng Feng, Robert Lyle Hood, Forhad Akhter, Austin Richard Schoppe, Omar Navarro**  
**COE Mechanical/Biomedical Engineering**

Non UTSA Inventors: **Bruce Adams, Robert A DeLorenzo**

*A compact and portable medical suction device with modified structure developed with the constraints on first-responders and military combat medics*

**Yusheng Feng, Robert Lyle Hood, Forhad Akhter, Austin Richard Schoppe, Omar Navarro**  
**COE Mechanical/Biomedical Engineering**

Non UTSA Inventors: **Bruce Adams, Robert A DeLorenzo**

*Software to import schedule files as baselines into an existing schedule*

**Yilmaz Hatipkarasulu**  
**CACP Construction Science**

*A device that provides treatment to shoulder injuries through various mechanical and electrical methods*

**Robert Lyle Hood, Corinne Nawn, Zach Stelle Fallon, Mark Kevin Sparkman**  
**COE Biomedical/ Mechanical Engineering**

*A transdermal device for efficient transfection of genetic material and cell transformation*

**Robert Lyle Hood, Forhad Akhter**  
**COE Mechanical Engineering**

Non UTSA Inventor: **Lingqian Chang**

*An antigen useful for diagnosis and immunization against Valley fever infection*

**Chung-Yu Hung, Gary R. Ostroff, Natalia Castro-Lopez**  
**COS Biology**

*A diagnosis antigen for detecting Coccidioides infection*

**Chiung-Yu Hung, Jieh-Juen Yu**

**COS Biology**

*An experiential educational program in which undergraduate students perform internships, community service, and urban engagement*

**Sean Kelly, Kathryn Jill Fleuriet**

**Honors College**

*A high-performance computing system that can perform smart automated monitoring using vision based system in real-time*

**Mo Jamshidi, Patrick Jennings Benavidez, Berat Alper Erol,**

**Abhijit Majumdar, Divya Bhaskaran, Arman Rezakhani**

**COE Electrical and Computer Engineering**

Non UTSA Inventor: **Benjamin Factor**

*A method to improve AES encryption implementation*

**Eugene Britto John, Alekhya Muthineni**

**COE Electrical & Computer Engineering**

*Software that detects fraud anomalies in broad areas such as security, malware classification, credit cards, insurance, and health care*

**Daijin Ko, Nicole L Beebe**

**COB Information Systems & Cyber Security/ Management Science and Statistics**

*A web-based tool which assists users in determining the appropriate statistical test for a given set of parameters*

**H. Paul LeBlanc**

**COLFA Communication**

*A framework that isolates and detects faulty or malicious devices in the IoT system*

**Junghee Lee, Kim Kwang Raymond Choo**

**COE Electrical and Computer Engineering and COB Information Systems & Cyber Security**

*Hardware that provides a high level of security by combining security features*

**Tongping Liu, Hongyu Liu, Sam Albert Silvestro, Tianyi Liu**

**COS Computer Science**

*A device for fistula treatment which targets all sections of gastrointestinal tract*

**Solaleh Miar, C. Mauli Agrawal, Anson Joo Leng Ong,**

**Teja Guda**

**COE Biomedical Engineering**

Non UTSA Inventor: **Sandeep Natvarlal Patel**

*A system for detecting emotion engagement streamed over the internet*

**Peyman Najafirad, Arun Das**

**COE Electrical & Computer Engineering**

*A lighting fixture that dramatically changes the surface appearance between lit and unlit states*

**Taeg K. Nishimoto**

**CACP Architecture**

*A series of lamps that changes the appearance of colors on the surface when the light is turned on*

**Taeg K Nishimoto**

**CACP Architecture**

*A bioink to enable the 3D printing of biomaterials*

**Joseph Pearson, Teja Guda, Jasmine Paulette King**

**COE Biomedical Engineering**

*Implantable microcomputer with embedded sensors for the management of diseases or medical monitoring of patients*

**Chunjiang Qian, Joseph John Paul, Paul Morton**

**COE Electrical & Computer Engineering**

*A methodology of analyzing a biomarkers fluorescence spectral shape*

**Kirk Schanze, Zhiliang Li**

**COS Chemistry**

Non-UTSA Inventor: **Yun Huang**

*A low-cost method which reveals the potential of fluorescence spectrum shape analysis in screening and cancer diagnosis*

**Kirk Schanze, Zhiliang Li**

**COS Chemistry**

Non-UTSA Inventors: **Yun Huang, April Risinger**

*A technology that can prevent a formation that leads to corrosion in pipelines*

**Heather Shipley, Gisella Lamas-Samanamud**

**COE Civil and Engineering**

Non-UTSA Inventors: **Tony Elven Reeves, Kenneth Lange, Jonathan Bohmann, Michael Tidwell**

*A platform to sell and buy energy generated from local sources*

**Ahmad Taha, Shen Wang**

**COE Electrical & Computer**

Non UTSA Inventor: **Jianhui Wang**

*An application method that it can be used as a potential therapeutic to treat obesity and cardiovascular diseases*

**Francis K Yoshimoto**

**COS Chemistry**

# Office of Research Support

The Office of the Research Support offers a variety of internal awards to encourage faculty to seek out new research ideas and expand scholarly works. The seed grant programs support the knowledge enterprise by awarding faculty members funding to explore new areas of research. Faculty can work out new ideas, create new collaborations, either in a different or complementary fields or obtain preliminary data that can be cited in applications for extramural funding, all to enhance the breadth of scholarly and creative activity on campus.

## RETURN ON INVESTMENT

In fiscal year 2017, the VPR awarded:

**38** Seed Grant Awards  
Totaling **\$807,494**

AS OF SPRING 2019

VPREDKE tracks two years of research output. Return on seeding research for FY 2017 Awardees generated:

**33** Grant Submissions  
**17** Awards  
**71** Submitted Publications  
**47** Undergraduate Students  
**75** Graduate Students  
**12** Postdoctoral Scholars  
**6** Visiting Scientists Engaged  
**53** Other Scholarly Works

RESULTED IN A RETURN ON  
INVESTMENT TOTALING:

**\$3,176,791**

## FY 2018 Award Totals

CACP	2 awards	<b>\$25,000</b>
COB	4 awards	<b>\$20,000</b>
COE	5 awards	<b>\$160,000</b>
COEHD	5 awards	<b>\$25,000</b>
COLFA	11 awards	<b>\$70,000</b>
COPP	1 award	<b>\$20,000</b>
COS	1 award	<b>\$10,000</b>

Total **\$340,000**

## GREAT

Grants for Research Advancement and Transformation

09.01.2017 - 08.31.2018

**\$140,000** awarded: **\$20,000** per researcher x 7 new projects

The GREAT program provides seed grants to support new areas of research for faculty at UTSA, to assemble preliminary data that can be used to seek extramural funding and advance UTSA's goal of reaching Tier One status.

### College of Architecture, Construction & Planning

*Construction and Planning / Architecture*

#### Jae Yong Suk

Investigation of Street Lighting's Physical Characteristics and Their Impacts on Public Safety at Night

### College of Engineering

*Biomedical Engineering*

#### Teja Guda

Scaffolds with Soft Zones for Bone Regeneration

*Mechanical Engineering*

#### Wei Gao

Advanced Materials Based on Two-dimensional Building Blocks – Computational Design Based on Chemistry and Topology

#### R. Lyle Hood

An Improved Cystoscopic Approach for 3D Imaging of Intrabladder Cancers

### College of Liberal & Fine Arts

*Anthropology*

#### Sonia Alconini

The Kingdom of Metals: Inka Frontier Colonization and Expansion

### College of Public Policy

*Criminal Justice*

#### Kellie R. Lynch

Threat Appraisal and Help Seeking in High-Risk Intimate Partner Violence Victims: The Application of Protection Motivation Theory

### College of Sciences

*Biology*

#### Yufeng Wang

Temporal-spatial Dynamic Interactions between the Fungal Pathogen *Fusarium Graminearum* and Maize

# CONNECT

Connecting through Research Partnerships

09.01.2017 - 08.31.2018

\$250,000 awarded: \$125,000 per team

The CONNECT Program is a joint effort between The UTSA and the Southwest Research Institute (SwRI). The program encourages interaction between investigators in support of the acquisitions of established extramural, peer-reviewed research funding. This agreement provides unprecedented opportunities for researchers to work together in addressing issues of mutual interest and need.

The Connect program was founded to enhance scientific collaboration between SwRI and UTSA and increase their research funding base. The two selected projects will investigate biofilm corrosion in pipelines and an ultrasound drug delivery methodology.

#### *Mechanical Engineering*

**Brendy Rincon Troconis, UTSA**

**James Dante, SwRI**

Effects of Triazine-Based H<sub>2</sub>S Scavenger Byproducts on the Film Composition and Cracking of Carbon Steel in Oilfield Applications

#### *Civil Engineering*

**Samer Dessouky, UTSA**

**Jerome Helffrich, SwRI**

Promoting Sustainability and Safety for Texas Rural Roadways Through Self-Powered Sensing and Detection Systems

# INTRA

Internal Research Awards

09.01.2017 - 08.31.2018

\$100,000 awarded: \$5,000 per researcher x 20 new research projects

The Internal Research Awards (INTRA) program is part of the UTSA Vice President for Research's coordinated efforts to promote research and scholarship of the highest quality. This program offers experience in identifying and submitting applications to potential funding sources, provides preliminary data to support applications for extramural funding, and enhances scholarly and creative activities.

#### **College of Architecture, Construction, and Planning**

**Shelley Roff**

A Critical Analysis of Measurement and Proportion Methods Used in Land Survey and Building Construction in the San Antonio Missions

#### **College of Business**

*Management*

**Dina V. Krasikova**

Follower Responses to Destructive Leading: A Multilevel Framework

#### **Meghan Thornton-Lugo**

Guilt and Atonement: A Study of Makeup Calls

#### *Finance*

**Mehdi Beyghaghi**

Institutional Investors and Loan Dynamics

#### *Marketing*

**Saerom Lee**

The Role of Public Recognition in Self-Benefit vs. Other-Benefit Marketing Appeals

#### **College of Education and Human Development**

*Bicultural Bilingual Studies*

**Martha Sidury Christiansen**

Bilingualism in Young Mexican Folkloristas: Language Ideologies and Identity in a Local Cultural Arts Center Development

#### *Educational Psychology*

**Guan Saw**

Cognitive and Motivational Factors contributing to STEM Career Aspirations among High School Students with and without Disabilities

**Kara Styck**

Cross-Validation of the Academic Behavior Change Scale with a Non-Clinical Sample

#### *Kinesiology, Health, and Nutrition*

**Eunhee Chung**

The Role of a Western Obesogenic Diet on Pregnancy Outcomes and Fetal

**Sara Oswald**

Where Two Roads Meet: Lived Experiences of Mother-Students Balancing Home and School

#### **College of Liberal & Fine Arts**

*Anthropology*

**Robert Hard**

Warfare and Village Formation in the American Southwest

*Communication*

**Christopher Hajek**

The Roles of Communication, Social Comparison, and Social Creativity in the Formation of Entrepreneurial Social Identity

*History*

**Catherine Komisaruk**

The Indian Housewives of New Spain: Marriage, Migration, and Native Uprisings in Colonial Mexico and Guatemala

**Omar Valerio-Jimenez**

Mexican Americans' Use of History and Memory of the U.S.-Mexico War

*Modern Languages and Literatures*

**Malgorzata Oleszkiewicz-Peralba**

Tripillian-Cucuteni Culture as Cradle of World Civilizations

*Music*

**Kristen Pellegrino**

Music Teacher Resilience: Identity Transitions in the Early Years of Teaching

**Stan Renard**

Mapping the Music Industry Across America

**John Drew Stephen**

Opera, the Hunt, and European Identity

*Psychology*

**Michael R. Baumann**

Longitudinal Examination of Cigarettes, E-cigarettes, Alcohol, and Marijuana Among New College Students

*Philosophy & Classics*

**Joshua Thurow**

You Just Believe That Because...: The Epistemology and Ethics of Debunking Arguments



# Institute for Economic Development

Founded in 1979, the UTSA Institute for Economic Development generated \$2.9 billion in direct economic impact nationwide in FY2018. Comprised of nine centers, the Institute provides professional business advising, technical training, research, market analysis, and strategic planning for entrepreneurs, business owners and community leaders to strengthen economies locally, nationally and internationally.

The UTSA Institute also leads the expansion of the Small Business Network of the Americas. This international initiative has guided 23 western countries to adopt the UTSA Small Business Development Center methodology, which has evolved over the last 40 years at universities and colleges across the nation. Today, over 250 centers operate in Central America, Latin America and the Caribbean. They have collectively advanced more than 60,500 entrepreneurial projects. Chile and Colombia lead the adaptation process with 51 and 126 Centers, respectively.

The Institute is committed to creating jobs, growing businesses and fostering economic and community development. With an emphasis on scale-up growth industry clusters and technology commercialization, the Institute's core strengths include business start-up, manufacturing competitiveness, high-growth minority businesses, international trade and investment, government contracting and corporate supply chains, rural development, applied economics and development policy research, and shale energy economic research. [iedtexas.org](http://iedtexas.org)



**FY 2018**

**\$2.9 Billion**

Direct Economic Impact

## SERVICE RESULTS

**43,320**

Businesses  
Served

**1,123**

Training Events  
& Courses

**30,815**

Training  
Participants

**7,694**

Consulting  
Cases

**4,811**

Business  
Research Tasks

## ECONOMIC IMPACT

**6,238**

Jobs  
Created

**13,193**

Jobs  
Retained

**565**

New Business  
Starts

**534**

Business  
Expansions

**\$290,932,480**

New Financing  
& Investments

**\$2,597,538,884**

New Sales,  
Contracts & Exports

**\$34,854,959**

New Tax  
Revenue Generated





# Areas of Research Excellence

## SELECTED GRANT AWARDS



### CLOUD, CYBER, COMPUTING & ANALYTICS

**Dwayne Williams and Keith Harrison**

Center for Infrastructure Assurance and Security (CIAS)

College of Sciences

*International Cyber Assessment and Defense Competition/Cyber Competition Metrics*

**US Department of Homeland Security | \$3,047,863**



### ADVANCED MATERIALS

**Marcelo Marucho**

Physics & Astronomy

College of Sciences

*Polyelectrolyte Nature of Cytoskeleton Filaments*

**NIH National Institute of General Medical Sciences | \$1,486,946**



### INTEGRATED BIOMEDICINE

**Chiung-Yu Hung**

South Texas Center for Emerging Infectious Diseases (STCEID)

College of Sciences

*1R01AI135005-01A1: Development of a multivalent vaccine against *Coccidioides* infection*

**NIH National Institute of Allergy/Infectious Diseases | \$1,899,426**

**James Bray**

Psychology

College of Liberal and Fine Arts

*PAMPERRS: Pregnant and Mothers Postpartum Enhanced Recovery-oriented Residential Services*

**Substance Abuse and Mental Health Services Administration  
\$2,620,000**



### SOCIAL AND EDUCATIONAL TRANSFORMATION

**Heather Shipley**, University College

**Mark Appleford**, College of Engineering

**Jorge Solis**, College of Education and Human Development

**Juliet Langman**, College of Education and Human Development

**Kelly Nash**, College of Sciences

**Harry Millwater**, College of Engineering

**Krystal Castillo Villar**, College of Engineering

*Building Capacity: Transforming STEM Undergraduate Education through Academic Literacy, Mentoring and Professional Development*

**National Science Foundation | \$1,500,000**



### SUSTAINABLE COMMUNITIES AND CRITICAL INFRASTRUCTURE

**Brian Laub and Janis Bush**

Center for Research and Training in the Sciences (CRTS)

College of Sciences

*UTSA Roof Top Harvesting and Storm Water Disbursement over the Edwards Aquifer Recharge Zone: a Retrofit for Treatment of Previously Untreated Cover*

**San Antonio River Authority | \$1,057,401**

