Mission Statement

The mission of the Mechanical Engineering Department is “to provide excellent educational and research opportunities to our undergraduate and graduate students who will contribute to the technological and economic development of the community, the region and the nation.”

Access to Excellence

The faculty of the Department of Mechanical Engineering values excellence in teaching, research, and service to the community and the profession. Our students learn to be technically competent and socially responsible, while they acquire a solid background to perform diverse engineering functions; to succeed in graduate education; and acquire life-long learning skills.

Greetings from the Alamo City!

It’s my pleasure to share the exciting news from the Mechanical Engineering Department. Our faculty continue to gain success in their research and draw more recognitions. Assistant Professor Dr. Bing Dong received the prestigious NSF CAREER award, three faculty members elected as Fellows of their professional societies making our faculty holding 16 Fellow status in various professional organizations, and we welcomed 3 new faculty members. Our student enrollment and graduation continue increasing and faculty and graduate student productivity continue rising. Our ME graduate program’s ranking by the US NEWS has risen to #121.

Please read below or visit our redesigned department website for more exciting news. We look forward to another exciting year!

HAI-CHAO HAN, PHD
Professor and Department Chair
Zachry Endowed Chair

Quick facts

PROGRAMS

- M.S. IN MECHANICAL ENGINEERING
- OIL & GAS CERTIFICATE PROGRAM
- AEROSPACE CERTIFICATE PROGRAM
- INDUSTRIAL AND MANUFACTURING CERTIFICATE PROGRAM
- M.S. IN ADVANCED MANUFACTURING AND ENTERPRISE ENGINEERING, AND
- PH.D. IN MECHANICAL ENGINEERING (JOINT EFFORT WITH SOUTHWEST RESEARCH INSTITUTE)
- UNDERGRADUATE ENROLLMENT: 1179
- GRADUATE ENROLLMENT: 78 MASTERS; 45 DOCTORAL STUDENTS
- DEGREES AWARDED IN AY2018: 193 BS, 29 MS, AND 8 PHD

FACULTY

- 24 T/TT ASSISTANT, ASSOCIATE, AND FULL PROFESSORS
- 4 FULL-TIME SENIOR LECTURERS
- 3 ADJOINTE PROFESSORS FROM SWRI AND 3 DUAL APPOINTMENT WITH OTHER DEPARTMENTS

RESEARCH

- ANNUAL RESEARCH EXPENDITURES: $2.7 MILLION IN FY2018
- NEW GRANT SECURED: $73 MILLION IN 2018 ($3.3 MILLION SHARED CREDIT)
- 65 PEER-REVIEWED JOURNAL PAPERS AND BOOK CHAPTERS IN 2018

FOR MORE INFORMATION, PLEASE VISIT OUR DEPARTMENT WEBSITE: http://engineering.utsa.edu/me
### Awards & News

- Dr. Ender Finol elected Fellow of American Heart Association (AHA).
- Dr. Frank Chen elected Fellow of Institute of Industrial & Systems Engineering (IISE).
- Dr. Kiran Bhaganagar elected Associate Fellow of AIAA
- Krystel Castillo received Early Career Award from INFORMS.
- Krystel Castillo received a 2018 HENAAC award (October).
- Kiran Bhaganagar was elected as an Associate Fellow of AIAA.
- Bing Dong received 2018 Emerging/Young Contributor Award from the International Building Performance Simulation Association-USA Region (IBPSA-USA). (9/2018).
- Amir Jafari and Gold Hood received the UTSA Innovation Award (3rd Category, NSF I-Corps) (11/2018)
- Bing received NSF CAREER award 2/2019
- Bing received promotion & tenure starting 9/2019

### Major Events

- 4th Graduate student seminar day was held in September 2018
- Advisory Council meeting held in November 2018
- Faculty and staff holiday luncheon in December 2018
- ME Junior VIP luncheon in April 2019

### Dr. Bing Dong Received the Prestigious NSF CAREER Award

Dr. Bing Dong has received the prestigious CAREER award of $500,181 from the National Science Foundation for his project “CAREER: Holistic Assessment of the Impacts of Connected Buildings and People on Community Energy Planning and Management”. The funding will allow Dong to develop a new method of energy planning and management for smart communities and cities.

“This CAREER award will help me achieve my long-term career goal of advancing interdisciplinary research on sustainable and smart cities, where smart communities, people, grid, transportation, water systems and others interplay and to make a real world impact on energy efficiency and environmental sustainability,” said Dong.

The NSF CAREER Award supports 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. Unlike most research grants, this award requires both strong scholarly research and a significant plan for education and mentorship.

Bing is among 3 faculty members in the college of Engineering who received this award this year. He is the 3rd in the mechanical engineering department to receive the award, after Dr. Victor Maldonado (2018) and Dr. Hai-Chao Han (2007).

### ME Faculty

<table>
<thead>
<tr>
<th>ME Faculty</th>
<th>Position</th>
<th>Research Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADEL ALAEDDINI, PH.D.</td>
<td>Associate Professor</td>
<td>Industrial and Systems Engineering</td>
</tr>
<tr>
<td>YUSHENG FENG, PH.D.</td>
<td>Professor</td>
<td>Computational Bioengineering and Biomedicine</td>
</tr>
<tr>
<td>KIRAN BHAGANAGAR, PH.D.</td>
<td>Associate Professor</td>
<td>Turbulence Simulations Over Complex Surfaces</td>
</tr>
<tr>
<td>ZHI-GANG FENG, PH.D.</td>
<td>Associate Professor</td>
<td>Thermofluids Modeling</td>
</tr>
<tr>
<td>PRANAV BHOUNSULE, PH.D.</td>
<td>Assistant Professor</td>
<td>Robotics</td>
</tr>
<tr>
<td>KRYSIE CASTILLO, PH.D.</td>
<td>GreenStar Endowed Associate Professor in Energy Supply Chain Modeling</td>
<td></td>
</tr>
<tr>
<td>F. FRANK CHEN, PH.D.</td>
<td>Brown Distinguished Chair Professor</td>
<td>Lean Manufacturing</td>
</tr>
<tr>
<td>F. FRANK CHEN, PH.D.</td>
<td>Chair Professor</td>
<td>Fellow of IIE, SME</td>
</tr>
<tr>
<td>CHRISTOPHER COMBS, PH.D.</td>
<td>Associate Professor</td>
<td>Dee Howard Fellow</td>
</tr>
<tr>
<td>BING DONG, PH.D.</td>
<td>Assistant Professor</td>
<td>Smart Building System</td>
</tr>
</tbody>
</table>

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ME Faculty

**AMIR JAFARI, PH.D.**
Assistant Professor
Robotics and Mechatronics

**RUIJIE LIU, PH.D.**
Associate Professor
Hydraulic Fracturing and Geomechanics

**RANDALL MANTEUFEL, PH.D.**
Associate Professor
Assistant Department Chair
Fellow of ASME
Energy Conservation

**HARRY MILLWATER, PH.D.**
Dawson Endowed Professor
Mechanics of Materials

**DAVID RESTREPO, PH.D.**
Assistant Professor
Advanced Materials

**BRENDY RINCON TROCONIS, PH.D.**
Assistant Professor
Corrosion Science and Engineering

**CAN SAYGIN, PH.D.**
Professor
Senior VP
Manufacturing Engineering

**HUNGDA WAN, PH.D.**
Associate Professor
Manufacturing Systems Engineering

**XIAODU WANG, PH.D.**
Professor
Fellow of ASME, AIMBE
Bone Biomechanics

**XIAOWEI ZENG, PH.D.**
Associate Professor
Computational Mechanics

**YESH P. SINGH, PH.D.**
Professor Emeritus
Fellow of ASME
Mechanism Design

**MADHVARAO "RAO" GOVINDARAJU, PH.D.**
Senior Lecturer
NanoMaterials

**FRANCISCO HERBERT, PH.D.**
Senior Lecturer
Renewable Energy

**ASHOK NEDUNGADI, PH.D.**
Senior Lecturer
Advanced Controls

**YOONEUN LEE, PH.D.**
Research Assistant Professor
Advanced Manufacturing

**SIDNEY CHOCRON, PH.D.**
Adjunct Professor (SWRI)
Mechanics and Materials

**ARTURO MONTAYA, PH.D.**
Associate Professor (dual appointment with Civil Eng)
Mechanics and Materials

**CARL F. POPELAR, PH.D.**
Adjunct Professor (SWRI)
Fracture Mechanics

**FRANCISCO HERBERT, PH.D.**
Senior Lecturer
Renewable Energy

**JAMES WALKER, PH.D.**
Adjunct Professor (SWRI)
Fellow of AIAA, ASME, IBS
Mechanics and Materials

**AMIR JAFARI, PH.D.**
Assistant Professor
Robotics and Mechatronics

**YOONEUN LEE, PH.D.**
Research Assistant Professor
Advanced Manufacturing

**ME Staff**

**BEN CAMPOS**
Administrative Manager

**CAYLA JIMENEZ, MS**
Program Coordinator
Study Abroad Program Continues

Mechanical Engineering student, Pablo Guajardo and Environmental Science student, Kayleigh Johnson led by Dr. Randy Manteufel (from left to right in the photo) participated in the study abroad program at Beihang University in Beijing, China in summer 2018. Dr. Manteufel taught a renewable energy course for “International Summer School” at Beihang University with 40 international students from across the world.

Me Senior Design Teams Win Top Awards at COE Tech Symposium

CITE COMPETITION

1ST PLACE
TEAM: The Winch-Men, Wonder Wind Winch
MEMBERS: Jesus Almanza, Alex Groves
2ND PLACE
TEAM: OTIRS, Estuary Clean Up System
MEMBERS: Nick Ballesteros, Antonio Terrazas, Estuary Clean Up System
3RD PLACE
TEAM: Innovators of Barriers
MEMBERS: Hao Ly, Jacques Nicolay, Eric Duesterhoft, Victor Martinez

OVERALL TECHNOLOGY SYMPOSIUM WINNERS
1ST PLACE
TEAM: FiloWorks, Multi-material Filament Extruder
MEMBERS: Sarah Robinson, Jeremy Goldstein, Roberto Orossteita, Blake Walthall
3RD PLACE
TEAM: TNT Engineering, CNC Tube Notcher Machine
MEMBERS: Craig Gutierrez, Eduardo Morales, Erick Rangel, Jonathan De La Cruz
### New Research Grants

<table>
<thead>
<tr>
<th>PI NAME / ROLE</th>
<th>PROJECT TITLE</th>
<th>SPONSOR</th>
<th>PROJECTED TOTAL FUNDING</th>
<th>START DATE / END DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amir Jafari / Lead PD/PI</td>
<td>Workshop on Human-Friendly Robots</td>
<td>UTSA Open Cloud Institute</td>
<td>$32,165.00</td>
<td>2-AUG-18 / 31-JAN-19</td>
</tr>
<tr>
<td>Victor Maldonado / Lead PD/PI</td>
<td>CAREER: Control of Vortex Breakdown in High-Reynolds Number Rotor Flows with Secondary Vortex Structures</td>
<td>University of Texas Health Science Center San Antonio</td>
<td>$22,991.00</td>
<td>1-AUG-17 / 1-MAR-18</td>
</tr>
<tr>
<td>Robert Hood / Lead PD/PI</td>
<td>Fabrication of 2nd Generation Intravenous Delivery System</td>
<td>UTSA VPR Office</td>
<td>$351,007.00</td>
<td>1-AUG-18 / 31-JUL-20</td>
</tr>
<tr>
<td>Jeff Prevost / PD/PI, Harry Millwater / Co-PD/PI</td>
<td>Secure Cyber-Physical Systems Research and Education</td>
<td>UTSA VPR Office</td>
<td>$20,000.00</td>
<td>1-JUL-18 / 31-DEC-18</td>
</tr>
<tr>
<td>Xiangwei Zeng / Lead PD/PI</td>
<td>The Role of Cell-Cell Interactions in Cancer Cell Dissemination</td>
<td>UTSA VPR Office</td>
<td>$30,000.00</td>
<td>1-JAN-18 / 31-DEC-20</td>
</tr>
<tr>
<td>Bing Dong / Lead PD/PI</td>
<td>Quantification of HVAC Energy Savings for Occupancy Sensing in Buildings through An Innovative Testing Methodology</td>
<td>UTSA VPR Office</td>
<td>$189,918.00</td>
<td>1-JUL-18 / 31-DEC-18</td>
</tr>
<tr>
<td>Xiaodu Wang / Lead PD/PI</td>
<td>Supplemental Multiscale modeling of ultrastructural origins of bone fragility</td>
<td>UTSA VPR Office</td>
<td>$150,000.00</td>
<td>1-SEP-18 / 31-AUG-19</td>
</tr>
<tr>
<td>Robert Hood / Lead PD/PI, David Restrepo / Co-PD/PI, Yusheng Feng / Co-PD/PI</td>
<td>An Innovative Approach to Airway Securement in Civilian and Military Emergency Trauma</td>
<td>UTSA VPR Office</td>
<td>$150,000.00</td>
<td>1-OCT-18 / 30-SEP-19</td>
</tr>
<tr>
<td>Krystel Castillo Villar / Lead PD/PI</td>
<td>Integrated Process Optimization for Biochemical Conversion</td>
<td>UTSA VPR Office</td>
<td>$150,000.00</td>
<td>1-SEP-17 / 31-AUG-20</td>
</tr>
<tr>
<td>PI NAME / ROLE</td>
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<tr>
<td>Krystel Castillo Villar / Lead PD/PI</td>
<td>Conference Grant: Innovations in Data Analytics for Smart Agriculture (IDASA)</td>
<td>Department of Agriculture</td>
<td>$46,000.00</td>
<td>1-SEP-18 / 31-AUG-20</td>
</tr>
<tr>
<td>Amir Jafari / Lead PD/PI</td>
<td>I-CORPS: A Treadmill with Adjustable Stiffness with integrated measurement systems for rehabilitation applications</td>
<td>National Science Foundation</td>
<td>$50,000.00</td>
<td>15-SEP-18 / 15-FEB-19</td>
</tr>
<tr>
<td>Krystel Castillo Villar / Lead PD/PI</td>
<td>A Cloud-based Decision Support System Integrating Biomass Quality, Uncertainty and Risk to Optimize the Production of Second-Generation Biofuels</td>
<td>Oklahoma State University</td>
<td>$120,000.00</td>
<td>1-SEP-18 / 31-MAR-19</td>
</tr>
<tr>
<td>Robert Hood / Lead PD/PI</td>
<td>Universal Limb Stasis System for Extended Storage and Resuscitation (ULiSSES) for Avulsed Limb Soft Tissue Metabolic Support</td>
<td>University of Texas Health Science Center San Antonio</td>
<td>$150,000.00</td>
<td>30-SEP-18 / 29-SEP-20</td>
</tr>
<tr>
<td>Hung-Da Wan / Lead PD/PI, Yoonneun Lee / Co-PD/PI</td>
<td>CAMLS Membership: Incorporating Lean Six Sigma Methodologies into the Institute for Integration of Medicine and Science (IIMS)</td>
<td>University of Texas Health Science Center San Antonio</td>
<td>$50,000.00</td>
<td>1-SEP-18 / 31-AUG-19</td>
</tr>
<tr>
<td>Bing Dong / Lead PD/PI</td>
<td>Spatial-Temporal Data Driven Weather and Energy Forecasting for Improved Implementation of Advanced Building Controls</td>
<td>Argonne National Laboratory</td>
<td>$150,000.00</td>
<td>1-SEP-18 / 31-MAR-20</td>
</tr>
<tr>
<td>Kiran Bhaganagar / Lead PD/PI</td>
<td>Novel Technology for Detection and Prediction of Spreading of Air-Borne Chemical Agents</td>
<td>Minority Serving Institutions STEM Research &amp; Development Consortium (MSRD)</td>
<td>$90,300.00</td>
<td>20-NOV-18 / 19-NOV-19</td>
</tr>
<tr>
<td>Jeff Prevost / PD/PI, Harry Millwater / Co-PD/PI</td>
<td>Cyber: Development and Security Analysis of Cyber Physical Systems</td>
<td>Georgia Tech Research Institute</td>
<td>$220,000.00</td>
<td>1-SEP-18 / 31-AUG-20</td>
</tr>
<tr>
<td>Castillo (PI at UTSA) / Co-PI</td>
<td>Shape-Morphing Blades Coupled with Tailored Aerodynamic Add-Ons for Enhanced Wind Energy Conversion</td>
<td>ConTex</td>
<td>$85,000.00</td>
<td>1-SEP-18 / 9-JAN-19</td>
</tr>
</tbody>
</table>


ME Department Advisory Council Members

- Jahan Eftekhar | Chair
  Founder, J. Eftekhar & Associates
- Norm Abramson
  NAE member, Southwest Research Institute (Retired)
- Henry Bernstein
  President, Gas Turbine Materials Associates
- Steven Griffin
  Interiek
- Dan Gonzalez | VP
  StandardAero
- J. Michael Harris | PE
  CPS Energy
- Bryan Lancon | VP
  BRL Consultants
- Golda Obinzu
  City of San Antonio, Office of Sustainability
- Jose Rodriguez | PE
  Goettinck & Associates
- Luis Sanchez | VP
  Harland Clarke
- Darren Simmons | VP
  Aalborg Dispense Technologies
- Dominic Papagni
  Chief Engineer, The Boeing Company

2018 AWARDS

Based on 2017 Performance Evaluation

- Most prolific researcher of the Year: Xiaowei Zeng. 8 journal papers+1 book chapter.
- Most prolific researcher of the Year (Assistant Professor): Bing Dong. 7 journal papers.
- Most well-funded researcher of the Year: Krystel Castillo. expenditure $700K.
- Most well-funded researcher of the Year (Assistant Professor): Adel Alaeddine. expenditure $307K.
- Appreciation for teach a class with the highest enrollment: Amir Jafari, 130 in ME4543.
- Best evaluation graduate course (10 students) Professor of the Year: Pranav Bhounsule. 4.9.
- Best evaluation undergraduate course Professor of the Year: Ender Finol, 4.7.
- Service award: Randy Manteufel

2019 AWARDS

Based on 2018 Performance Evaluation

- Most prolific researcher of the Year: Bing Dong. 7 journal papers +3 book chapters.
- Most well-funded researcher of the Year: Krystel Castillo, expenditure $571K.
- Most well-funded researcher of the Year (Assistant Professor): Bing Dong. expenditure $196K.
- Strongest Graduate Student supporter of the Year: Harry Millwater, $135K.
- Strongest Graduate Student supporter of the Year (Assistant Professor): Brendy Rincon, $111K.
- Appreciation for teach a class with the highest enrollment: Pranav Bhounsule, 127 in ME4543.
- Best evaluation graduate course (10 students) Professor of the Year: Frank Chen, 4.9.
- Best evaluation undergraduate course Professor of the Year: Randy Manteufel, 4.9.
- Service award: Randy Manteufel