SAME 2018 Conference
University of Texas at Arlington
December 14th, 2018

Peter E. Crouch
Dean, College of Engineering
UTA Notables

• Total global enrollment in excess of 58,000 students, making UTA the largest institution in the UT System. Campus enrollment of 42,296 students

• Carnegie R-1: Doctoral University, 5th fastest growing amongst doctoral public institutions, >180 degree programs

• Ranked #221 in US News Best Colleges for 2019, #126 among top public universities, and #5 in diversity index listing.

• For 2017, UTA was ranked
  – #1 in Texas for bachelor’s and master’s degrees awarded to African-American students,
  – #1 in North Texas & #12 in the US for master’s degrees & #18 in the US for bachelor’s degrees awarded to Hispanic graduate students,
  – #1 in North Texas & #2 in Texas for master’s degrees awarded to minority students & #21 in the US for bachelor’s and master’s degrees awarded.

• Of UTA’s 220,000 alumni, approximately 65 percent live in North Texas, creating an annual economic impact of almost $13 billion.
UTA College of Engineering Notables

• 11 baccalaureate, 14 master’s and 9 doctoral degrees. All seven departments are ranked individually in U.S. News & World Report’s 2019 ranking of graduate programs. Undergraduate ranking is 116 and graduate ranking is 83.
• Total enrollment in fall 2018 is 7,244, the highest enrollment ever. This includes an all-time high undergraduate enrollment of 4,644.
• Hispanic students constitute 28% of freshmen in the College.
• 34% of our undergraduate students are first-generation college students.
• Among the largest colleges of engineering in Texas (behind: TAMU, UT Austin, UTD)
• Hired 36 new faculty members in the past three years, & 11 last year. Scheduled to hire another 10 this year. 146 tenured/tenure-track faculty members, 24% of whom are women, 50 full time non tenue track faculty. 25% of 196 full time faculty are women.
• 42% percent of graduates in the class of 2017 completed an internship or co-op while at UTA.
Engineering Degree Programs

Bioengineering:
B.S., Biomedical Engineering
M.S., Biomedical Engineering
Ph.D., Biomedical Engineering

Materials Science and Engineering:
M.S., Materials Science and Engineering
M.Eng., Materials Science and Engineering
Ph.D., Materials Science and Engineering

Computer Science and Engineering:
B.S., Computer Engineering
B.S., Computer Science
B.S., Software Engineering
M.S., Computer Engineering
M.S., Computer Science
M.S., Software Engineering
Ph.D., Computer Science and Engineering

Mechanical and Aerospace Engineering:
B.S., Aerospace Engineering
B.S., Mechanical Engineering
M.S., Aerospace Engineering
M.Eng., Aerospace Engineering
M.S., Mechanical Engineering
M.Eng., Mechanical Engineering
Ph.D., Aerospace Engineering
Ph.D., Mechanical Engineering

Civil Engineering:
B.S., Architectural Engineering (2015 - 103 students)
B.S., Civil Engineering
B.S., Construction Management
M.S., Civil Engineering
M.Eng., Civil Engineering
Master of Construction Management (2017 – 129 students)
Ph.D., Civil Engineering

Electrical Engineering:
B.S., Electrical Engineering
M.S., Electrical Engineering
M.Eng., Electrical Engineering
Ph.D., Electrical Engineering

Industrial, Manufacturing and Systems Engineering:
B.S., Industrial Engineering
M.S., Engineering Management
M.S., Industrial Engineering
M.S., Logistics
M.S., Systems Engineering
M.Eng., Industrial Engineering
Ph.D., Industrial Engineering
Space

Engineering has roughly 400,000 sq. ft. in the following buildings (~50% research space):

- Aerodynamics Research Center (entire)
- Civil Engineering Lab Building (entire)
- Engineering Laboratory Building (entire)
- Engineering Research Building
- Nedderman Hall
- Woolf Hall (entire)
- SEIR (Opened Fall 2018 – engineering, science and nursing, & extra large classrooms)
Science & Engineering, Innovation & Research (SEIR)
Civil Engineering Laboratory Building

- 26,000-square-foot building
- State of the art structural testing laboratories
- Accommodates a unique Geo-mechanics Research Lab for advanced testing of unsaturated & expansive soils under simulated foundation, traffic, & earthquake loads
Undergraduate Degrees Granted

BS Degrees Granted

- BME
- CE
- CSE
- EE
- IE
- MAE
Fall ‘18 Student Make-Up

Fall’18 Freshman Class:

• New Freshmen – 851 (18%)
• New Transfer Students – 682 (15%)

Fall ’18 Undergraduates: 4,644  Fall ’18 Graduates: 2,600

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>163</td>
<td>147</td>
</tr>
<tr>
<td>CE</td>
<td>566</td>
<td>173</td>
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<tr>
<td>CSE</td>
<td>1151</td>
<td>211</td>
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<tr>
<td>EE</td>
<td>357</td>
<td>53</td>
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<td>61</td>
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<tr>
<td>IE</td>
<td>91</td>
<td>39</td>
</tr>
<tr>
<td>MAE</td>
<td>1150</td>
<td>158</td>
</tr>
<tr>
<td>Total</td>
<td>3802</td>
<td>842</td>
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<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>BE</td>
<td>61</td>
<td>45</td>
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<tr>
<td>CE</td>
<td>421</td>
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<tr>
<td>CSE</td>
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<td>258</td>
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<tr>
<td>EE</td>
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<td>65</td>
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<tr>
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<td>65</td>
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<tr>
<td>IE</td>
<td>299</td>
<td>65</td>
</tr>
<tr>
<td>MAE</td>
<td>377</td>
<td>27</td>
</tr>
<tr>
<td>MSE</td>
<td>45</td>
<td>10</td>
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<td>Total</td>
<td>2011</td>
<td>589</td>
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Ethnic Diversity of Fall ‘18 Undergraduate Enrollment

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Non Resident</td>
<td>17.0%</td>
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<tr>
<td>Unknown</td>
<td>0.3%</td>
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<tr>
<td>Hispanic</td>
<td>26.6%</td>
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<tr>
<td>American Indian</td>
<td>0.1%</td>
</tr>
<tr>
<td>Asian</td>
<td>14.4%</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>0.1%</td>
</tr>
<tr>
<td>African American</td>
<td>7.4%</td>
</tr>
<tr>
<td>White</td>
<td>30.3%</td>
</tr>
<tr>
<td>Multiple</td>
<td>3.8%</td>
</tr>
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</table>

UT Arlington recently was ranked as the fifth-most-diverse university in the United States, and that diversity is reflected in the College's enrollment:
## Faculty Distribution for Fall 2018

<table>
<thead>
<tr>
<th>Fall 2018</th>
<th>FTE T/TT</th>
<th>FTE NTT</th>
<th>Total FTE Faculty</th>
<th>FTE Adjuncts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dean’s Office</td>
<td>7</td>
<td>3.5</td>
<td>10.5</td>
<td>3.625</td>
</tr>
<tr>
<td>BE</td>
<td>14</td>
<td>1</td>
<td>15</td>
<td>0.25</td>
</tr>
<tr>
<td>CE</td>
<td>23 (+2 Sp.)</td>
<td>11</td>
<td>34 (+2 Sp.)</td>
<td>7</td>
</tr>
<tr>
<td>CSE</td>
<td>31</td>
<td>14.5</td>
<td>45.5</td>
<td>12.625</td>
</tr>
<tr>
<td>EE</td>
<td>21.5</td>
<td>5</td>
<td>26.5</td>
<td>1.5</td>
</tr>
<tr>
<td>IMSE</td>
<td>13</td>
<td>2</td>
<td>15</td>
<td>3.25</td>
</tr>
<tr>
<td>MAE</td>
<td>31</td>
<td>12</td>
<td>43</td>
<td>3.25</td>
</tr>
<tr>
<td>MSE</td>
<td>5.5</td>
<td>1</td>
<td>6.5</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>146 (+2 Sp.)</strong></td>
<td><strong>50</strong></td>
<td><strong>196 (+2 Sp.)</strong></td>
<td><strong>31.5</strong></td>
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## Total Research Expenditures by Department

<table>
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<tr>
<th>Fiscal Year</th>
<th>COE</th>
<th>BE</th>
<th>CE</th>
<th>CSE</th>
<th>EE</th>
<th>IMSE</th>
<th>MAE</th>
<th>MSE</th>
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</thead>
<tbody>
<tr>
<td>FY 10-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>FY 11-12</td>
<td>2.60</td>
<td>3.54</td>
<td>3.12</td>
<td>2.99</td>
<td>3.28</td>
<td>0.51</td>
<td>2.13</td>
<td>1.23</td>
</tr>
<tr>
<td>FY 12-13</td>
<td>3.76</td>
<td>4.94</td>
<td>3.52</td>
<td>3.25</td>
<td>5.89</td>
<td>1.23</td>
<td>3.67</td>
<td>1.11</td>
</tr>
<tr>
<td>FY 13-14</td>
<td>3.14</td>
<td>4.77</td>
<td>3.25</td>
<td>4.27</td>
<td>5.04</td>
<td>0.68</td>
<td>4.62</td>
<td>1.67</td>
</tr>
<tr>
<td>FY 14-15</td>
<td>2.76</td>
<td>5.54</td>
<td>4.27</td>
<td>4.38</td>
<td>7.36</td>
<td>1.13</td>
<td>5.43</td>
<td>1.48</td>
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<tr>
<td>FY 15-16</td>
<td>2.92</td>
<td>6.17</td>
<td>4.38</td>
<td>4.80</td>
<td>6.26</td>
<td>0.87</td>
<td>5.98</td>
<td>1.22</td>
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<tr>
<td>FY 16-17</td>
<td>3.11</td>
<td>5.73</td>
<td>4.80</td>
<td>5.66</td>
<td>5.66</td>
<td>0.78</td>
<td>7.46</td>
<td>1.59</td>
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Selected CE Research

Ali Abolmaali, Ph.D.
Title: Structural health monitoring and service life prediction of pipelines
City of Arlington

Shih-Ho Chao, Ph.D.
Establishing Manufacturing and Large-Scale Casting Process and Structural Design Criteria for Ultra-High Performance Fiber-Reinforced Concrete
National Science Foundation

Hyeok Choi, Ph.D.
Chemical Decomposition Combined with Physical Adsorption for the Treatment of Investigation-Derived Waste Containing PFASs
Department of Defense (DoD)

Nick Fang, Ph.D.
Conducting research in identification of urban flood impacts caused by land subsidence and sea level rise for the Houston-Galveston Region
National Science Foundation
Selected CE Research

Sahadat Hossain, Ph.D.
Highway Slope Stabilization using Recycled Plastic Pins
TXDOT

Stephen Mattingly, Ph.D.
Optimizing Housing and Service Locations to Provide Mobility to Meet the Mandated Obligations for Former Offenders to Improve Community Health and Safety
USDOT/National Institute for Transportation and Communities (NITC)

Melanie Sattler, Ph.D.
Manhole Corrosion Protection Assessment
City of Arlington, TX

DJ Seo, Ph.D.
Implementation of Nested Hyper-Resolution Modeling with Data Assimilation for the National Water Model
NOAA
Selected CE Research

Kathleen Smits, Ph.D.
Natural gas migration and mitigating its occurrence/consequence
DOT PHMSA, DOE ARPA-E MONITOR

Nur Yazdani, Ph.D.
UTA-Spain Collaborative Research on Hazard Mitigation
National Science Foundation

Xinbao Yu, Ph.D.
Use of Geothermal Energy for De-icing Approach Pavement Slabs and Bridge Decks
Texas Department of Transportation

Yu Zhang, Ph.D.
Implementing Snow Data Assimilation Capabilities for the National Water Model
NOAA
Small Unmanned Aerial Vehicles (sUAV) – example of exploding research possibilities

- Infrastructure inspection and damage assessments (outside sensor embedment systems)
  - Helicopters and Small Aircrafts – Expensive
  - Small Unmanned Aerial Vehicles (sUAV or sUAS or Drones) – Major Advantages

- Diverse Infrastructure applications

- Aug 29th 2016, FAA- Released set of new regulations on commercial use of Small Unmanned Aerial Systems (sUAV)

Source: NSTAR Electric
College Focus Areas

1. Aerodynamics/ Aeropropulsion
2. *Automation / Autonomous Systems
3. *Big Data/HPC
4. *Built Infrastructure
5. Communications and Networks
6. *Energy
7. Internet of Things
8. Logistics
9. *Manufacturing
10. *Materials
11. *Nano-Technology
12. Health Care
13. *Security
14. *Smart Cities
15. Engineering of Biomedical Systems
16. *Water

* Areas where Civil Engineering Contributes
How can SAME membership help/get involved with UTA College of Engineering?

- UTA Alumni - join UTA alumni – College building an engineering chapter – get involved
- Provide Internships (College and UTA)
- Participate in Mentor Program (College and UTA)
- Participate in UTA Engineering Career Day
- Help connect the College to Governmental and & Military sponsored opportunities in TX & US
How can SAME membership help/get involved with UTA College of Engineering?

• Community leadership involvement with College and Department Board of Advisors
• Engineers Week, and similar activities
• Support K-12 STEM Outreach Activities
• Promote UTA College of Engineering
• Identification of professional education needs and partner on delivery of these
• Partner on putting together topical conferences and meetings – such as SAME 2018!