Welcome!

School of Engineering
Faculty Meeting
February 16, 2016
AGENDA
SOE Faculty Meeting
February 16, 2016

• Welcome, Call to Order, and Approval of Minutes from the 12/10/15 Meeting – Dean Kazem Kazerounian
• Guest Speaker - Provost Mun Choi
• Announcements and Introduction of New Faculty and Staff - Dean Kazem Kazerounian
• Strategic Initiatives Update – Senior Associate Dean Mike Accorsi
• Research & Graduate Education Updates – Associate Dean Mei Wei
• Undergraduate Program Updates – Brian Schwarz
• Faculty Presentation: Manos Anagnostou – Eversource Energy Center
• Open Forum
Announcements and Introduction of New Faculty and Staff

Dean Kazem Kazerounian
$9M Eversource Center for Storm Modeling & Management

- Predictive storm-based damage modeling
- Vegetation management
- Smart hardening of an integrated grid
- Development of resilient communities and businesses
UTC Aerospace Systems (UTAS) Partnership

$1.3M Partnership focusing on advanced materials research
CONGRATULATIONS!

George Bollas – CBE
Director, UTC Institute for Advanced Systems Engineering
CONGRATULATIONS!

Marten Van Dijk - ECE
Charles H. Knapp Associate Professor in Electrical Engineering
CONGRATULATIONS!
AI Geib Professors of Environmental Engineering Research and Education

Jeff McCutcheon - CBE

Baikun Li - CEE
WELCOME!

**Thanh Nguyen**  
Assistant Professor, Mechanical Engineering  
**Ph.D.**: Princeton University  
**Research Areas**: Nano-micro technology, BioMEMs, Microfluidics, Nanopiezoelectrics, Bionanointerface, Cell/Neuronal Mechanics, Biomaterials and Drug Delivery
Ebad Jahangir
Visiting Professor, Electrical & Computer Engineering and UTC-IASE
Ph.D.: Aerospace Engineering 1990, University of Michigan, Ann Arbor
WELCOME!

Amy Holland
Academic Advisor – Mechanical Engineering
WELCOME!

Dana Ziter
Academic Advisor – Computer Science & Engineering
WELCOME!

David Wanik
Assistant Research Professor – Eversource Energy Center
Ph.D.: 2015, UConn
Research Areas: Predictive Analytics, Natural Hazards Risk Assessment, Geospatial Data Processing
WELCOME!

Paul Wortman
Computer Programmer / Analyst II
Electrical & Computer Engineering
WELCOME!

Nicholas Eshelman
Manager of Technical Projects
Electrical & Computer Engineering
WELCOME!

Mark Bouley
Mechanical Design Technician II
Engineering Machine Shop
WELCOME!

Kylene Perras
Program Director, Strategic Initiatives
Dean’s Office
WELCOME!

Joshua Garvey
Writer / Editor III
Dean’s Office
SOE Faculty Meeting
February 16, 2016

Michael Accorsi
Senior Associate Dean

• Research Growth & Major Grants for Q1 & Q2
Research Growth

Expenditures & New Awards

- First two quarters – OVPR only

Expenditures - Q1 & Q2

New Awards - Q1 & Q2
New NSF CAREER Award Recipients

- CAREER: Algorithms for Domain-Level Analysis of Gene Family Evolution
- CAREER: Understanding the Roles of Strain and Mass Disorder on Fundamental Thermal Transport Processes in Two-Dimensional Materials
## Major Grants – Q1 & Q2

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Title</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jackson, Eric D</td>
<td>DOT/Federal Highway Administration/CT Department of Transportation</td>
<td>Expanding the Role of Connecticut Transportation Safety Research Center to Enhance Connecticut's Safety Analysis Methods and Systems</td>
<td>$10,008,427</td>
</tr>
<tr>
<td>Anagnostou, Emmanouil N</td>
<td>Eversource</td>
<td>Predictive Storm &amp; Damage Modeling for Preparedness and Emergency Response Support</td>
<td>$2,367,895</td>
</tr>
<tr>
<td>Bi, Jinbo</td>
<td>NSF/CISE/Directorate for Computer and Information Sciences and Engineering</td>
<td>A High Performance Computing Foundation to Whole-Genome Prediction</td>
<td>$750,000</td>
</tr>
<tr>
<td>Sun, Luyi</td>
<td>ED/Department of Education</td>
<td>Multi-Functional Polymer Based Materials - Derived and Learned from Nature</td>
<td>$738,195</td>
</tr>
<tr>
<td>Vadas, Timothy M</td>
<td>ED/Department of Education</td>
<td>Environmental Engineering at the Forefront of Water Science, Policy and Education</td>
<td>$738,195</td>
</tr>
<tr>
<td>Vanden Berg-Foels, Wendy S</td>
<td>PHS/National Institutes of Health</td>
<td>Mandibular Cartilage Regeneration In Situ by Endogenous Stem Cell Recruitment</td>
<td>$735,886</td>
</tr>
</tbody>
</table>
## Major Grants – Q1 & Q2

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution and Office</th>
<th>Project Title</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khan, Mohammad M</td>
<td>DOD/Air Force Office of Scientific Research</td>
<td>Role of Effective Communication in Trust Building: Application to Human-Computer Interaction</td>
<td>691,793</td>
</tr>
<tr>
<td>Chon, Ki</td>
<td>NSF/CISE/Directorate for Computer and Information Sciences and Engineering</td>
<td>SCH: INT: Collaborative Research: Wearable Devices for In-Home Monitoring of Patients at Risk for Heart Failure</td>
<td>690,073</td>
</tr>
<tr>
<td>Michel, Laurent D</td>
<td>Comcast Cable Communications Management</td>
<td>Hardware Security Assessment for 35 Comcast Devices</td>
<td>620,000</td>
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<tr>
<td>Christenson, Richard</td>
<td>DOD/Navy/Office of Naval Research</td>
<td>Exploring Uncertainty in Real-Time Hybrid Substructuring of Marine Systems</td>
<td>619,575</td>
</tr>
<tr>
<td>Luh, Peter B</td>
<td>NSF/ENG/Directorate for Engineering</td>
<td>Evacuating with Others Virtually</td>
<td>619,125</td>
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<tr>
<td>Nabavi, Sheida</td>
<td>PHS/National Institutes of Health</td>
<td>Novel Integrative Method to Detect Biomarkers of Breast Cancer Resistance</td>
<td>595,691</td>
</tr>
<tr>
<td>Feng, Bin</td>
<td>PHS/National Institutes of Health</td>
<td>Colon Afferents: Molecular Identity, Histology/Morphology and Hypersensitivity</td>
<td>591,414</td>
</tr>
<tr>
<td>Name</td>
<td>Institution</td>
<td>Project Description</td>
<td>Amount</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Lu, Tianfeng</td>
<td>NASA/National Aeronautics &amp; Space Administration</td>
<td>Reduced Kinetic Models with Fuel Sensitivity for Turbulent Combustion Simulations</td>
<td>499,540</td>
</tr>
<tr>
<td>Zhu, Qing</td>
<td>Connecticut Innovations, Inc</td>
<td>A Near Infrared Imager as an Add-On Unit to Standard Ultrasound for Breast Cancer Treatment Prediction and Monitoring</td>
<td>497,665</td>
</tr>
<tr>
<td>Ilies, Horea T</td>
<td>NSF/CISE/Directorate for Computer and Information Sciences and Engineering</td>
<td>CHS-Small: Interactive Haptic Assembly and Docking for 3D Shapes</td>
<td>497,499</td>
</tr>
<tr>
<td>Shor, Leslie M</td>
<td>DOE/Department of Energy</td>
<td>Multi-Scale Dynamics of Water Regulation by Bacteria in Synthetic Soil Microsystems</td>
<td>487,562</td>
</tr>
<tr>
<td>Christenson, Richard</td>
<td>DOD/Navy/Office of Naval Research</td>
<td>Six-Degrees-of-Freedom Shake Table and Instrumentation for Real-Time Hybrid Substructuring (RTHS) Investigations of Complex Marine Systems</td>
<td>473,073</td>
</tr>
<tr>
<td>Lu, Tianfeng</td>
<td>DOD/Air Force Office of Scientific Research</td>
<td>Diagnostics of Strongly Turbulent Premixed Flames Based on Direct Numerical Simulations</td>
<td>466,520</td>
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<tr>
<td>Ilies, Horea T</td>
<td>NSF/ENG/Directorate for Engineering</td>
<td>Foundations and Systems for Geometric Interfaceability in Virtual Product Development</td>
<td>440,000</td>
</tr>
<tr>
<td>Name</td>
<td>Institution</td>
<td>Project Description</td>
<td>Amount</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Wu, Yufeng</td>
<td>NSF/CISE/Directorate for Computer and Information Sciences and Engineering</td>
<td>III: Small: Computational Methods for Analyzing Complex Genomes with Sequence Data</td>
<td>426,342</td>
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<tr>
<td>Lei, Yu</td>
<td>DOE/National Energy Technology Laboratory</td>
<td>AOI1 Wireless 3D Nanorod Composite Arrays based High Temperature Surface-Acoustic-Wave Sensors for Selective Gas Detection through Machine Learning Algorithms</td>
<td>400,000</td>
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<tr>
<td>Srivastava, Ranjan</td>
<td>/NSF/BIO/Directorate for Biological Sciences</td>
<td>Collaborative Research: Integrating Multiple Omics Analyses to Understand Gene Regulatory Networks</td>
<td>371,500</td>
</tr>
<tr>
<td>Luh, Peter B</td>
<td>NSF/ENG/Directorate for Engineering</td>
<td>Contingency-Constrained Unit Commitment with High Penetration of Intermittent Renewables</td>
<td>360,000</td>
</tr>
<tr>
<td>Sheehy, Donald R</td>
<td>NSF/CISE/Directorate for Computer and Information Sciences and Engineering</td>
<td>AF: Small: Homological Methods for Big Enough Data</td>
<td>340,954</td>
</tr>
<tr>
<td>Bozorgmanesh, Hadi</td>
<td>Connecticut Innovations, Inc</td>
<td>Connecticut Innovation and University Bioscience Grant</td>
<td>314,000</td>
</tr>
<tr>
<td>Willis, Brian G</td>
<td>NSF/ENG/Directorate for Engineering</td>
<td>Tunable Plasmic Nanostructures by Atomic Layer Deposition</td>
<td>299,999</td>
</tr>
</tbody>
</table>
New Proposals – Q1 & Q2

Proposals - Q1 & Q2
Major Initiatives – Flexible Electronics

• UConn is member of national network – NextFlex
• Establish activities as part of UConn Tech Park
• UConn activities led by Anson Ma - CBE
• Two major project calls in 2016 – April & July
• Need to engage CT companies
  • Workshop this Thursday 2/18 from 9:00 – 1:00
  • 20 companies & 20 faculty
Send your news to Josh Garvey at garvey@engr.uconn.edu
Graduate Education

Mei Wei
Associate Dean for Research and Graduate Education
Summer Work by Graduate Students

The Union’s last proposal would require that every GA who works in the summer be paid the **largest** amount of these four possibilities:

- The **total** stipend for “a full GA position” during the prior semester “or its proportionate equivalent if the workload expectations are higher in the summer”;

- A “total stipend” equal to the “total pay for an equivalent position in the previous summer plus at least a 3% increase”;

- A stipend equal to the pay received by faculty teaching in the summer; or

- For research assistants appointed to perform duties similar to those they performed in the Fall or Spring semester, “the same bi-weekly stipend rate as Fall or Spring.”
Summer Work by Graduate Students

1. **Ample funding** - Increased compensation called for by such an agreement or arbitration award would be mandatory, **overriding** any other offer that a faculty member made to a graduate student, even if the graduate student expressly accepted it.

2. **Clear offer letter** - You should also consider informing any graduate student to whom you are offering summer work that the offer may have to be **modified, or even rescinded**, if the collective bargaining process results in levels of compensation for which funds are not available.
Graduate Student Activities

• Professional development workshops
  ❖ **Feb 10:** Communicating research
  ❖ **March 23:** Transition to industry I
  ❖ **April 6:** How to write a proposal
  ❖ **April 25:** Transition to industry II

• Poster competition – **Feb 25**

• Domestic graduate students recruitment – **March 6-7**
Thank You
Provost Mun Choi
Freshman Application Trends
Storrs & Regional Campuses

- Applications at all campuses have increased 233% from Fall 1995 to Fall 2015
- STEM applicants at the Storrs Campus have increased 18% since Fall 2012
- Fall 2015 estimated STEM applicants at the Storrs Campus are almost 50% of the total number of applicants
Freshmen Quality
Storrs Campus

Mean SAT Scores

<table>
<thead>
<tr>
<th>Year</th>
<th>National</th>
<th>UConn</th>
<th>UConn Honors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>1013</td>
<td>1013</td>
<td>1112</td>
</tr>
<tr>
<td>2005</td>
<td>1026</td>
<td>1189</td>
<td>1316</td>
</tr>
<tr>
<td>2015</td>
<td>1006</td>
<td>1233</td>
<td>1398</td>
</tr>
</tbody>
</table>

High School Class Rank

<table>
<thead>
<tr>
<th>Year</th>
<th>Top 10%</th>
<th>Top 25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>21%</td>
<td>57%</td>
</tr>
<tr>
<td>2005</td>
<td>37%</td>
<td>80%</td>
</tr>
<tr>
<td>2015</td>
<td>50%</td>
<td>84%</td>
</tr>
</tbody>
</table>
Freshmen Retention Trend
Storrs Campus

- Nationally, the total Fall 2013 rate ranks 14th among the 58 Public Research Peer Universities and it is substantially higher than the 82% average for 345 colleges & universities in the national Consortium for Student Retention Data Exchange.

- Fall 2013 minority freshmen retention rate is also substantially higher than the national 80% average.
Graduation Trends
Storrs Campus

- UConn’s 4-Year graduation rate of 70% and 6-year graduation rate of 83% are significantly higher than most of the 58 Public Research Peer Universities

- **UConn’s average time to graduate of 4.2 years ranks 3rd**
• The new 4-year tuition plan focuses on maintaining academic excellence and financial affordability – it provides certainty for students and parents.

• Using UConn’s FY17 tuition & fee rates vs competitors FY16 rates, **UConn still offers the best value for CT residents**.
### Applications/Enrollment/Degrees

<table>
<thead>
<tr>
<th></th>
<th>FY16 Actual</th>
<th>Change from FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen Applications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM (est)</td>
<td>17,540</td>
<td>2,624</td>
</tr>
<tr>
<td>Total (est)</td>
<td>36,000</td>
<td>4,637</td>
</tr>
<tr>
<td>Storrs Undergraduates:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM</td>
<td>9,760</td>
<td>1,765</td>
</tr>
<tr>
<td>Total</td>
<td>18,826</td>
<td>1,298</td>
</tr>
<tr>
<td>Bachelor’s Degrees:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM (FY15)</td>
<td>2,634</td>
<td>247</td>
</tr>
<tr>
<td>Total (FY15)</td>
<td>5,320</td>
<td>198</td>
</tr>
<tr>
<td>Masters &amp; Doctoral Degrees:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM (FY15)</td>
<td>687</td>
<td>95</td>
</tr>
<tr>
<td>Total (FY15)</td>
<td>2,085</td>
<td>218</td>
</tr>
</tbody>
</table>

Storrs Engineering Undergraduate Enrollment increased from 1,995 in FY13 to 2,804 in FY16 or 41%
## Research Proposals/Awards/Expenditures

<table>
<thead>
<tr>
<th></th>
<th>FY15 Actual</th>
<th>Change from FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposals: STEM ($M)</td>
<td>$639</td>
<td>$178</td>
</tr>
<tr>
<td>Change from FY13</td>
<td>+39%</td>
<td></td>
</tr>
<tr>
<td>Proposals: Total ($M)</td>
<td>$695</td>
<td>$184</td>
</tr>
<tr>
<td>Change from FY13</td>
<td>+36%</td>
<td></td>
</tr>
<tr>
<td>Awards: STEM ($M)</td>
<td>$107</td>
<td>$43</td>
</tr>
<tr>
<td>Change from FY13</td>
<td>+67%</td>
<td></td>
</tr>
<tr>
<td>Awards: Total ($M)</td>
<td>$121</td>
<td>$42</td>
</tr>
<tr>
<td>Change from FY13</td>
<td>+53%</td>
<td></td>
</tr>
<tr>
<td>Average Award Size/Faculty: STEM</td>
<td>$204,519</td>
<td>$69,765</td>
</tr>
<tr>
<td>Change from FY13</td>
<td>+52%</td>
<td></td>
</tr>
</tbody>
</table>

- The University has hired 55 STEM faculty and 40 Non-STEM faculty during the past two years.

FY16 Success To Date: $87M in new research awards & $345M in research proposals submitted
Interdisciplinary Research Area: Sustainability & Resilience

- **Vision:** Premier Institutes for Water Resource Management & Storm Model Predictions—Investment in Engineering faculty

- **Results:**
  - $4.3M NSF PIRE grant for water research & education programs in Ethiopia
  - $9M EVERSOURCE Energy Center (EEC) for Storm Modeling

Manos Anagnostou is recipient of M. Curie Excellence Award, NSF CAREER & Pinius Medal

Ph.D. Graduation at Addis Ababa University
$81.7M Breakthrough Industry Partnerships

- **$25M UConn-FEI** Center for Advanced Microscopy & Materials Analysis
- **$9M Eversource** Energy Center
- **$7.5M GE** Advanced Technology Initiative
- **$7.2M Fraunhofer** Center for Energy Innovation
- **$10M UTC** Institute for Advanced Systems Engineering
- **$7.5M Additive Manufacturing & Innovation Center**
- **$7.5M Flexible Hybrid Electronics Manufacturing Innovation Institute**
- **$6M Comcast** Center for Security Innovation
- **$2M EDAX** Partnership for Advanced Electron Microscopy Innovation
Artists, Scholars and Public Discourse

• **Vision:** Premier Institute for Public Discourse

• **Results:**
  • $100K grant from Mellon Foundation for *Digital Humanities Design Studio*
  • $5.75M grant from the Templeton Foundation for *Intellectual Humility in Public Discourse Awarded to Professor Michael Lynch*

Michael Lynch – Director of the Humanities Institute & Pursuer of Reason and the Truth
Hartford Campus

• 182,000 ft² facility will be completed by 2017
• Business, Social Work, Public Policy and key UG programs will be offered
• Programs to transform Hartford through:
  – K-12 education reforms
  – Public policy development
  – Economic development
• Campus partners include HPL, Atheneum, CT Science Center, City Hall, CT Convention Center

Campus will be Central to Urban Renewal
Next Generation Connecticut Capital Plan: Building Excellence

**Next Generation Connecticut Hall**

- This new 212,000-square-foot facility will house students participating in one of eight Living & Learning Communities who are developing skills in innovation and creativity to lead their generation.
- Construction began in November 2014, with a budget of $105 million and completion targeted for Fall 2016.
Next Generation Connecticut Capital Plan: Engineering & Science Building

• This 115,000-square-foot high-performance building and laboratory for interdisciplinary research will accommodate anticipated student and faculty growth in such fields as bio-nano engineering and cyber-physical systems engineering

• Construction on the five-story, $95 million facility began in June 2015, with completion targeted for summer 2017
Consolidated Biology and Physics undergraduate teaching

29,000 sf unallocated research expansion capacity proximate to existing life science cores

27,000 sf unallocated research expansion capacity with physical and materials science cores
Next Generation Connecticut Capital Plan: Innovation Partnership Building

• This 115,000-square-foot facility, the first phase of UConn’s expansive Technology Park, will house various specialized instruments, enabling UConn researchers to readily partner with industry scientists - in its first decade, those partnerships are expected to include collaborations on technologies such as 3-D printing and cybersecurity.

• Construction began in June 2015, with completion targeted for Fall 2017.
FY16 Operating Budget Forecast

**Revenues: $1,308.0M**

- State Support: 30%
- Tuition: 27%
- Fees: 9%
- Grants & Contracts: 15%
- Auxiliary Revenue: 16%
- Other Revenue: 3%

**Expenses: $1,307.2M**

- Personnel: 58%
- Utilities, Equip, Food Svc, Cleaning, Lab Supplies, etc.: 18%
- Debt Service/Projects: 4%
- Research: 8%

**Personnel Breakdown**

- Faculty: 41%
- Professional Staff: 33%
- Police/Fire/Facilities/etc.: 13%
- Graduate Assistants: 5%
- Leadership: 2%
- Other (student labor, temps, etc.): 6%

*Reflects $10.2M reduction*
FY16 Commitment to Financial Aid for Undergraduate Students

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount Awarded</th>
<th>Number of Students</th>
<th>Percent of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>UConn Grant*</td>
<td>$70.1M</td>
<td>11,079</td>
<td>47%</td>
</tr>
<tr>
<td>CT Governor’s Grant</td>
<td>7.8M</td>
<td>2,355</td>
<td>10%</td>
</tr>
<tr>
<td>Federal SEOG</td>
<td>0.7M</td>
<td>194</td>
<td>0.8%</td>
</tr>
<tr>
<td>Federal Pell Grant</td>
<td>24.3M</td>
<td>5,664</td>
<td>24%</td>
</tr>
<tr>
<td>Federal Perkins and Direct Stafford Loans</td>
<td>73.7M</td>
<td>11,406</td>
<td>49%</td>
</tr>
</tbody>
</table>

Financial Aid from All Sources | 379M           | 17,837             | 76%                 |

*Excludes $26.5M of UConn scholarships awarded by departments such as Athletics.

47% of students receive University financial aid.
While the percent of support has increased since FY13, State funding has been $32.4M less than mandatory salary & fringe increases.

<table>
<thead>
<tr>
<th>State Support as % of Total Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY91</td>
</tr>
<tr>
<td>FY95</td>
</tr>
<tr>
<td>FY11</td>
</tr>
<tr>
<td>FY13</td>
</tr>
<tr>
<td>FY14</td>
</tr>
<tr>
<td>FY15</td>
</tr>
<tr>
<td>FY16 est</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>FY13-FY16 Total Shortfall ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractual Wage Increases</td>
</tr>
<tr>
<td>Healthcare &amp; Retirement Increases</td>
</tr>
<tr>
<td>Total Mandatory Increases</td>
</tr>
<tr>
<td>State Support Increase</td>
</tr>
<tr>
<td><strong>Funding Gap</strong></td>
</tr>
</tbody>
</table>
Consequences of Proposed Budget Cuts: What We Want to Avoid

- Quality of academic programs declines
- Less access for low-income students
- Drop in rankings
- Closing of Regional Campuses
- Increased class sizes
- Fewer courses offered
- Elimination of sports
- Lack of police and fire personnel
- Scarcity of mental health resources
- Reduced maintenance of facilities
- Elimination of academic programs or departments
- Less Graduate/Teaching Assistant support available
Investing in a Great University

• Identify & support big Ideas
  – Breakthrough research, teaching & scholarship
• Recruit & retain talented People
  – Endowed professorships
  – Scholarships & fellowships
• Develop innovative Infrastructure
  – Modern, competitive research & teaching laboratories

IDEAS - PEOPLE - INFRASTRUCTURE
Summary

• UConn is a great university and we’ll continue to make key investments and decisions to grow the programs of excellence for our students, faculty and staff
• We need your support to make this happen!
Undergraduate Programs Update

SoE Faculty Meeting
December 16th, 2016
Associate Dean Daniel D. Burkey
Current Students by Major

<table>
<thead>
<tr>
<th>Major</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical</td>
<td>417</td>
</tr>
<tr>
<td>Chemical</td>
<td>308</td>
</tr>
<tr>
<td>Civil</td>
<td>274</td>
</tr>
<tr>
<td>CompSci</td>
<td>233</td>
</tr>
<tr>
<td>CSE</td>
<td>308</td>
</tr>
<tr>
<td>Computer</td>
<td>61</td>
</tr>
<tr>
<td>Electrical</td>
<td>241</td>
</tr>
<tr>
<td>Engineering physics</td>
<td>35</td>
</tr>
<tr>
<td>Environmental</td>
<td>87</td>
</tr>
<tr>
<td>Mechanical</td>
<td>568</td>
</tr>
<tr>
<td>Materials Science</td>
<td>143</td>
</tr>
<tr>
<td>MEM</td>
<td>127</td>
</tr>
<tr>
<td>Undecided</td>
<td>145</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2947</strong></td>
</tr>
</tbody>
</table>

- Biomedical: 14%
- Chemical: 10%
- Civil: 9%
- CompSci: 8%
- CSE: 10%
- Computer: 2%
- Electrical: 8%
- Engineering physics: 1%
- Environmental: 3%
- Materials Science: 5%
- Mechanical: 19%
- MEM: 4%
- Undecided: 5%

www.engr.uconn.edu
## Admissions Update

<table>
<thead>
<tr>
<th>Admit type Desc</th>
<th>Major Desc</th>
<th>2015 to date</th>
<th>2016 to date</th>
<th>Change (+/-)</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>Biomedical Engineering</td>
<td>863</td>
<td>915</td>
<td>52</td>
<td>6.0%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Chemical Engineering</td>
<td>353</td>
<td>373</td>
<td>20</td>
<td>5.7%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Civil Engineering</td>
<td>444</td>
<td>392</td>
<td>-52</td>
<td>-11.7%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Computer Engineering</td>
<td>261</td>
<td>279</td>
<td>18</td>
<td>6.9%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Computer Science</td>
<td>740</td>
<td>919</td>
<td>179</td>
<td>24.2%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Computer Science &amp; Engng</td>
<td>376</td>
<td>398</td>
<td>22</td>
<td>5.9%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Electrical Engineering</td>
<td>272</td>
<td>255</td>
<td>-17</td>
<td>-6.3%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Engineering Physics</td>
<td>59</td>
<td>70</td>
<td>11</td>
<td>18.6%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Environmental Engineering</td>
<td>129</td>
<td>176</td>
<td>47</td>
<td>36.4%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Materials Science &amp; Engr</td>
<td>88</td>
<td>72</td>
<td>-16</td>
<td>-18.2%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Mechanical Engineering</td>
<td>966</td>
<td>1,030</td>
<td>64</td>
<td>6.6%</td>
</tr>
<tr>
<td>Freshman</td>
<td>Undecided</td>
<td>961</td>
<td>929</td>
<td>-32</td>
<td>-3.3%</td>
</tr>
<tr>
<td><strong>Total Engineering</strong></td>
<td></td>
<td><strong>5,512</strong></td>
<td><strong>5,808</strong></td>
<td><strong>296</strong></td>
<td><strong>5.4%</strong></td>
</tr>
</tbody>
</table>
Admission update continued

<table>
<thead>
<tr>
<th>Admit type Desc</th>
<th>Major Desc</th>
<th>2015 to date</th>
<th>2016 to date</th>
<th>Change + / -</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>MGMT &amp; ENGR for Manufacturing</td>
<td>69</td>
<td>84</td>
<td>15</td>
<td>21.7%</td>
</tr>
</tbody>
</table>
Thank You!

Celebrating 100 years of Engineering Excellence 1916-2016
Eversource Energy Center

Prof. Manos Anagnostou
SoE Faculty & Staff Meeting
16 Feb 2016
Vision

To be the foremost energy utility-academia partnership advancing leading-edge interdisciplinary research and technology for assuring reliable power during extreme weather and security events.
Achieving our Vision: Innovative, Progressive & Proactive

1. **Use base funding ($9M) to develop new technologies and research innovative solutions on power grid resiliency and hazard mitigation:**

   - **Advancing** the next generation of storm damage modeling to shorten outages
   - **Applying** best practices for sustainable and storm-resistant trees
   - **Educating** communities how to be **resilient**
   - **Implementing** electric grid efficiency and storm resiliency improvements

2. **Secure “industrial projects” or memberships triggered by successes or innovations resulting from our base-funding research:**
   - Additional utilities, major weather/energy consultants, insurance, telecommunications

3. **Secure additional research grants leveraging base-funding research:**
   - Federal (NSF, DOE, DHS, USDA)
   - State (DEEP, CTDOT)
Storm Damage Forecasting
Shortening Outages & Accelerating Restorations

*With preparedness at the forefront of every utility for ensuring superior customer service, Storm Damage Forecasting delivers actionable information on predicted outage locations and magnitude*

The **UConn Storm Damage Prediction Model** combines distribution system, tree, and storm characteristics to generate a dynamic model of anticipated system impact based on a storm’s intensity and track.

**This enables us to:**
- Determine the number of crews needed and strategically deploy them before a storm arrives
- Identify distribution system design improvements for greater resilience in storm conditions and year round

**Resulting in:**
- Faster storm response and restoration
- Avoided and shorter outages
- Cost efficiencies

---

**Hurricane Sandy**
- **PREDICTED** (13,330 TS)
- **ACTUAL** (14,338 TS)
Vegetation Management
Creating a Sustainable and Storm-Resistant Forest Design

Tree Biomechanics: understanding the effect of veg. management on stability

Predicting Hazards: 3D mapping of roadside forest hazards

Value Added: Small-scale Wood Utilization and Commercialization

Stormwise: Outreach and Education

Social Science Research: opportunities and barriers to adoption of storm resilience
LiDAR Technologies
Monitoring Roadside Vegetation and Utility Infrastructure

• Evaluate and demonstrate LiDAR system capabilities.
• Analyze change in vegetation.
• Develop in-house capabilities for working with LiDAR.
• Model utility pole integrity.

http://www.powline.com/products/pls_lite.html
Integrating Renewable Generation
Unintentional Islanding & Frequency Response Analysis

Unintentional Islanding occurs when distributed generators (e.g. PV) continue to energize a portion of system after disconnecting from the utility. Multiple inverters of Photovoltaic could interfere with each other to increase the possibility that unintentional island being energized.

Dynamic simulation and risk analysis:

- Analyze how frequency and voltage in a distribution system will react when separated from the utility source
- Assess the risk of having unintentional islanding

Resulting in:

- High fidelity power distribution models with high renewable penetration
- Accurate non-detection zone for islanding operation
- Established criteria for risk-limiting planning and operation
We will soon have a face
eversource.uconn.edu

• Announcement
  – Faculty forum
    • May 19th (agenda to be announced soon)
  – Call for demo project proposals
    • July 31st
Open Forum

Quiet Corner Innovation Cluster (QCIC)
Hadi Bozorgmanesh & Larry Silbart
Quiet Corner Innovation Cluster (QCIC)
EDA Award

Engineering Staff Meeting Update

Feb 16th, 2016
QCIC

- EDA FY2015 Regional Innovations Strategy Program
- Grant Awarded Feb 2016
  - Encompasses a three year time period
  - $1.5M total funding including:
    - 500K EDA
    - 500K CT Innovations
    - 500K UConn
Project Team

- Hadi Bozorgmanesh – PI
- Larry Silbart – Co-PI Proof of Concept Center
- Kathy F. Rocha – Program Manager
Description

• QCIC will partner with small-to-medium sized technology and manufacturing enterprises (SMEs) in rural eastern CT to promote business growth through innovation, enhanced R&D, and updated business capabilities.

• Build the innovation capacity of select SMEs that show the potential to grow through technology advancement.
Description (continued)

• A new Proof of Concept Center (POCC) will be created as the cornerstone of the program and integral part of UConn’s Tech Park.

• POCC will leverage existing centers of technology excellence, the Office of Technology Commercialization, and R&D capacity of UConn’s faculty to co-develop new products and services with rural SMEs.
Project focus area(s):

• **Innovation**: ecosystem engagement to create and grow companies by commercializing technology

• **Entrepreneurship**: High-growth entrepreneurial development (both educational and experiential)

• **Regional Connectivity**: connecting economic development and commercialization resources

• **Commercialization of Research**: innovative approaches to turning intellectual property into viable commercial businesses
SME manufacturers in Eastern CT

P&W Supply Chain SMEs

Request for Proposal

QCIC Engagement Process (6 steps) (Kathy Rocha et al.)

Research Lab 2

Research Lab 3

Proof of Concept Center

IMS

Research Lab 1

IPB/Tech Park
Reasons to Engage?

• Economic Development through industry partnerships is foundational to NextGenCT and the IPB/Tech Park

• Funding will be available to support Graduate Student project (especially at the MS level)

• Funding may be used to leverage equipment purchases

• Long-term industry partnerships may emerge – e.g. SBIR grants

• Workforce Development – opportunities for graduate student hiring (let’s keep talented kids in CT!)
Open Forum

Employee Assistance Program (EAP)
Gary Alger, LADC, CEAP
Storrs Campus Counselor