

CornellEngineering Update

Lance R. Collins
Dean of Engineering

October 25-26, 2018

CornellEngineering



Agenda

- General updates
 - College Leadership Updates
 - Major Faculty and Student Project Team Awards
 - Research and Graduate Studies Highlights
 - Diversity Highlights
 - Engineering Career Center Highlights
- Facilities Update
- Fiscal Year '18 Giving Update

College Leadership and Faculty Updates October 2018



Kavita Bala, Chair for CS



Kavita Bala
Chair
Department of Computer Science

- Joined Cornell in 2002.
- Professor, Computer Science Department and Program of Computer Graphics
- Selected Awards and Honors
 - Fiona Ip Li '78 and Donald Li '75 Excellence in Teaching Award, College of Engineering, 2015
 - Best Paper Award, Computational Aesthetics, 2014
 - James and Mary Tien Excellence in Teaching Award, College of Engineering, 2009
 - NSF CAREER Award, 2007
 - James and Mary Tien Excellence in Teaching Award, College of Engineering, 2006
 - Affinito-Stewart Award, PCCW, 2005
- Degrees received:
 - Ph.D., Massachusetts Institute of Technology, 1999
 - M.S., Massachusetts Institute of Technology, 1995
- Research interests: computer graphics, computer vision, deep learning, and human perception.

New Faculty

(Arrivals Fall 2018)



Nicholas Abbott
Professor, CBE



Qi Li
Asst. Professor, CEE



Austin Benson
Asst. Professor, CS



Eshan Chattopadhyay
Asst. Professor, CS



Kengo Kato
Assoc. Professor, DSS

New Faculty

(Arrivals Fall 2018)



Daniel Lee
Professor
ECE/Cornell Tech



Khurram Afridi
Assoc. Professor, ECE



Rene Kizilcec
Asst. Professor, IS



Cheng Zhang
Assoc. Professor, IS



Zhiting Tian
Asst. Professor, MAE



Christina Yu
Asst. Professor, ORIE

Major Faculty Awards

- **2018 Adele L. Boskey Award, American Society for Bone and Mineral Research**
 - Marjolein van der Meulen (BME)
- **2018 Fuller Albright Award, American Society of Bone and Mineral Research**
 - Chris Hernandez (MAE/BME)
- **2018 Class of Fellows, Biomedical Engineering Society**
 - Claudia Fischbach-Teschl (BME)
- **Fellow, American Heart Association**
 - Jonathan Butcher (BME)
- **Pew Scholar in the Biomedical Sciences, Pew Charitable Trusts**
 - Ilana Brito (BME)

Major Faculty Awards

- **Prince Sultan Bin Abdulaziz International Prize for Water**
 - Wilfried Brutsaert (CEE)
- **National Science Foundation CAREER Award**
 - Mert Sabuncu (ECE/BME)
- **Young Investigator Award, Air Force Office of Scientific Research**
 - Francesco Monticone (ECE)
- **2018 SIGMETRICS Achievement Award, Association for Computing Machinery**
 - Jim Dai (ORIE)
- **Edward Bouchet Legacy Award, Howard University**
 - Lance Collins

Student Project Team Awards

- **Cornell University Unmanned Air Systems (CUAIR)**
 - Placed first in several categories and fourth overall among 69 teams at the 2018 Association for Unmanned Vehicle Systems International Student Unmanned Aerial Systems Competition.
 - Placed first in the technical report and flight readiness review categories.
 - Placed first overall among fixed-wing entrants.
- **Cornell Formula SAE Racing Team**
 - Placed eleventh out of 113 student teams at the 2018 Formula SAE Racing Competition held May 9-12 at the Michigan International Speedway.
- **Cornell Rocketry Team**
 - Placed fifth out of 54 student teams in NASA's 2018 Student Launch competition, hosted near NASA's Marshall Space Flight Center in Huntsville, Alabama.

Research and Graduate Studies Highlights October 2018

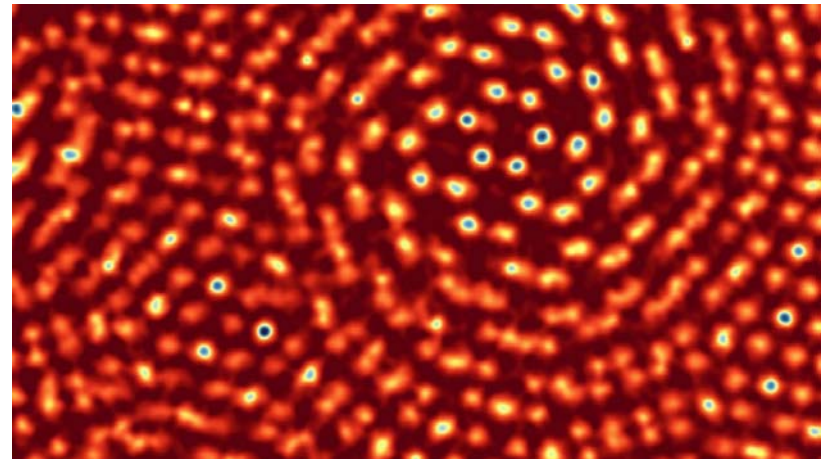


Research Highlight

Guinness World Record for micro view into hidden worlds

Guinness World Records has officially recognized a Cornell collaboration between Professors David Muller (AEP) and Sol Grunner (Physics) for creating the highest resolution images ever from a electron microscope. The experiment was made possible through the invention of a new type of high-powered detector and a technique called ptychography.

The research was published in Nature Magazine in July 2018.



World record image from electron microscope showing best resolution ever at 0.039 nanometers – less than one ten-billionth of a meter.

Research Highlight

New Learning-based Algorithms for the Analysis of Very-Large-Scale Neuroimaging Data

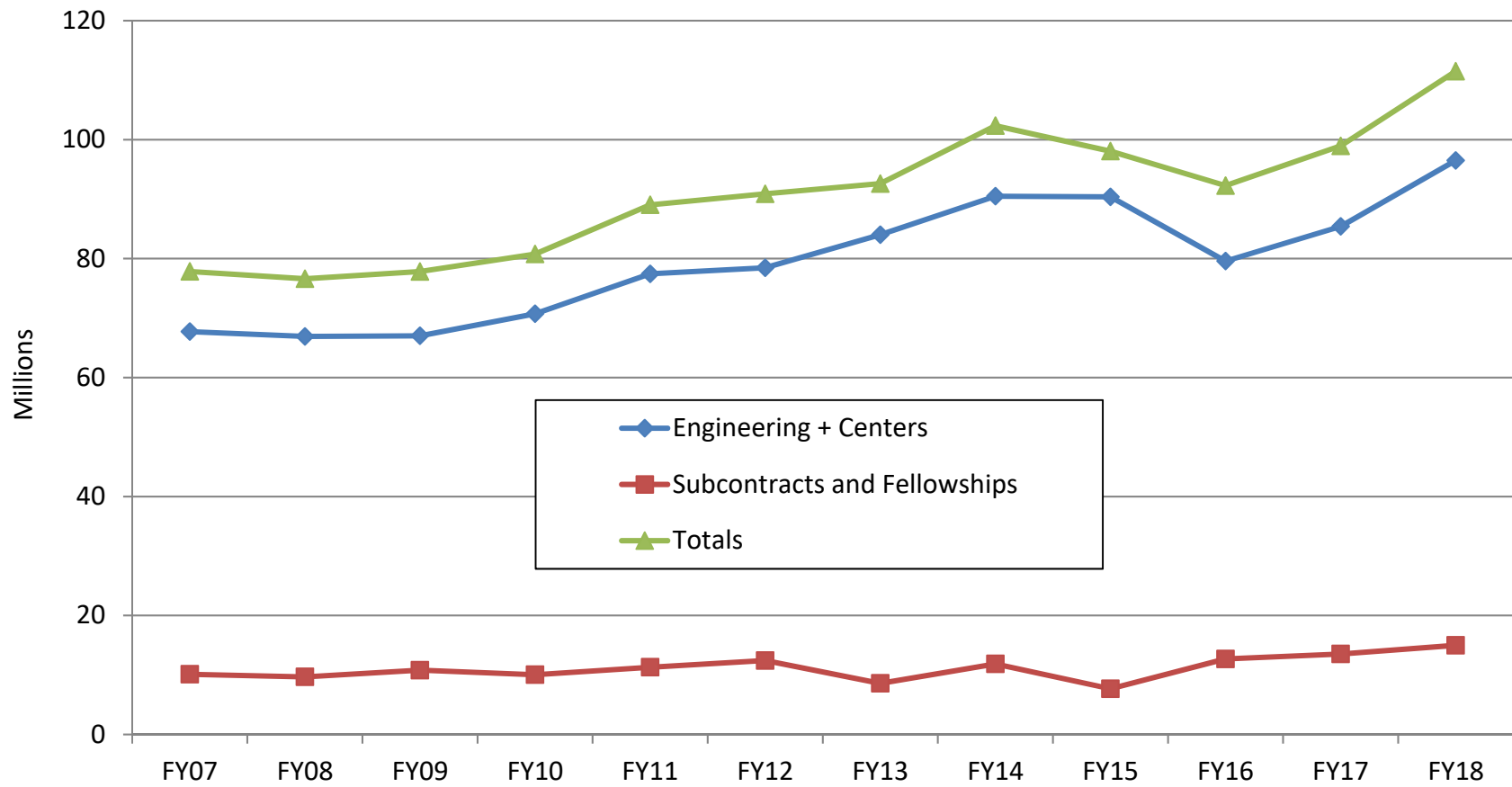
Mert Sabuncu, Assistant Professor, received a \$581,438 CAREER Award from the National Science Foundation. The CAREER award is one of the NSF's most prestigious award for early stage investigators.

The research will enable large-scale brain imaging studies. This will include tens of thousands of individuals contributing head MRI scans and other biomedical data such as whole-genome sequences. The data will allow researchers to understand how genetic, environmental, and other factors may affect disorders like Alzheimer's disease.

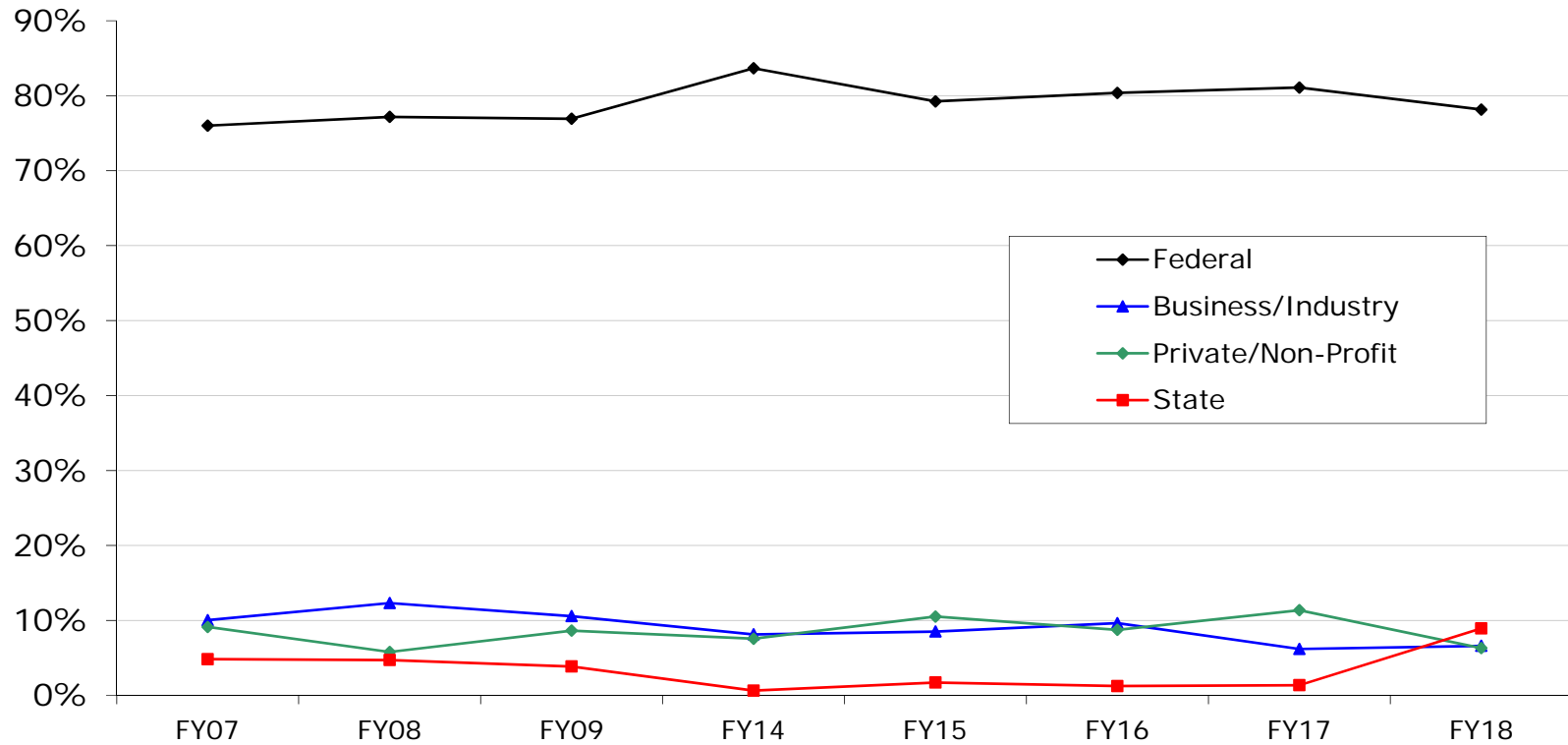


**Professor Mert Sabuncu –
ECE and BME**

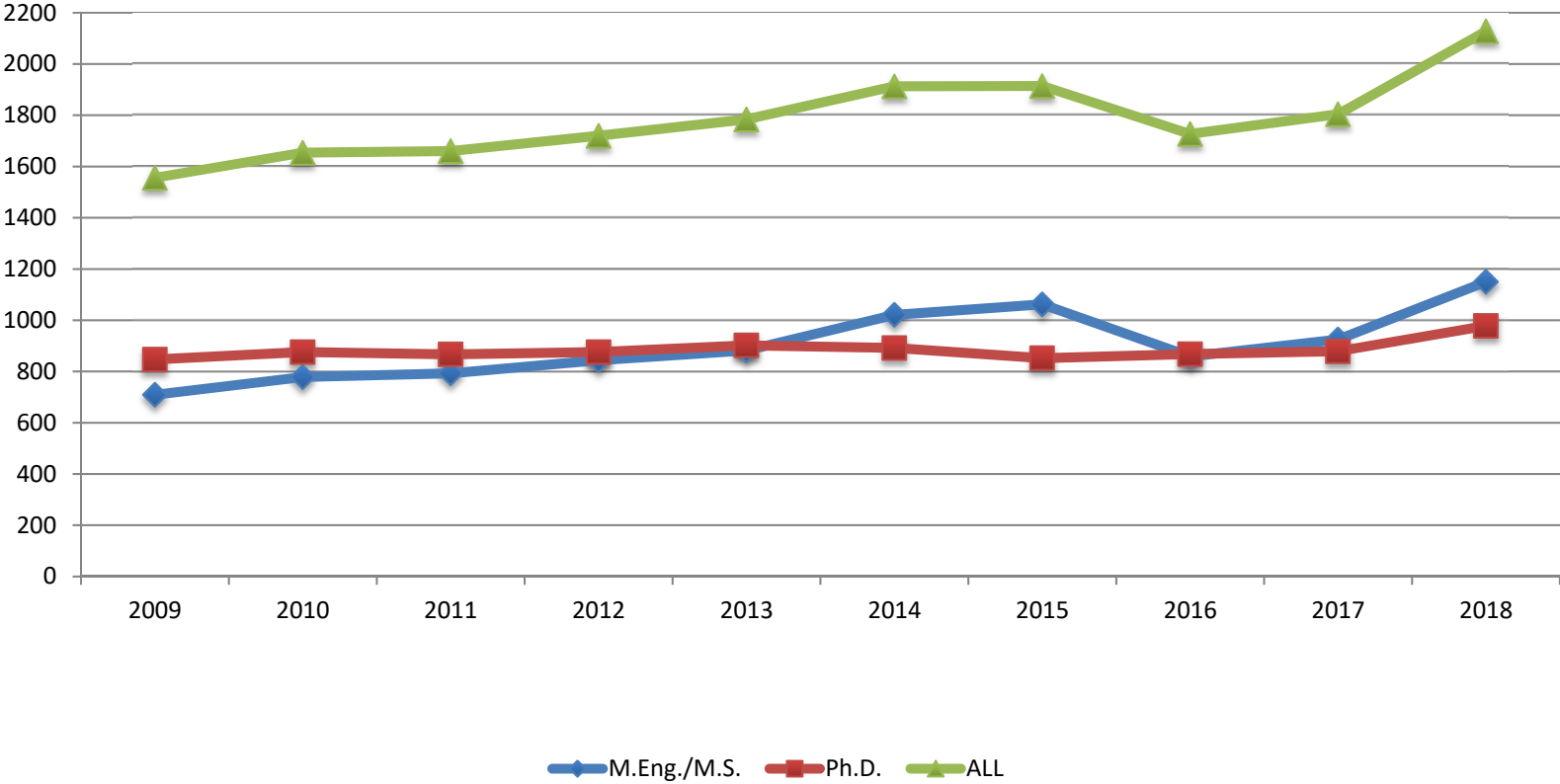
Research Expenditures



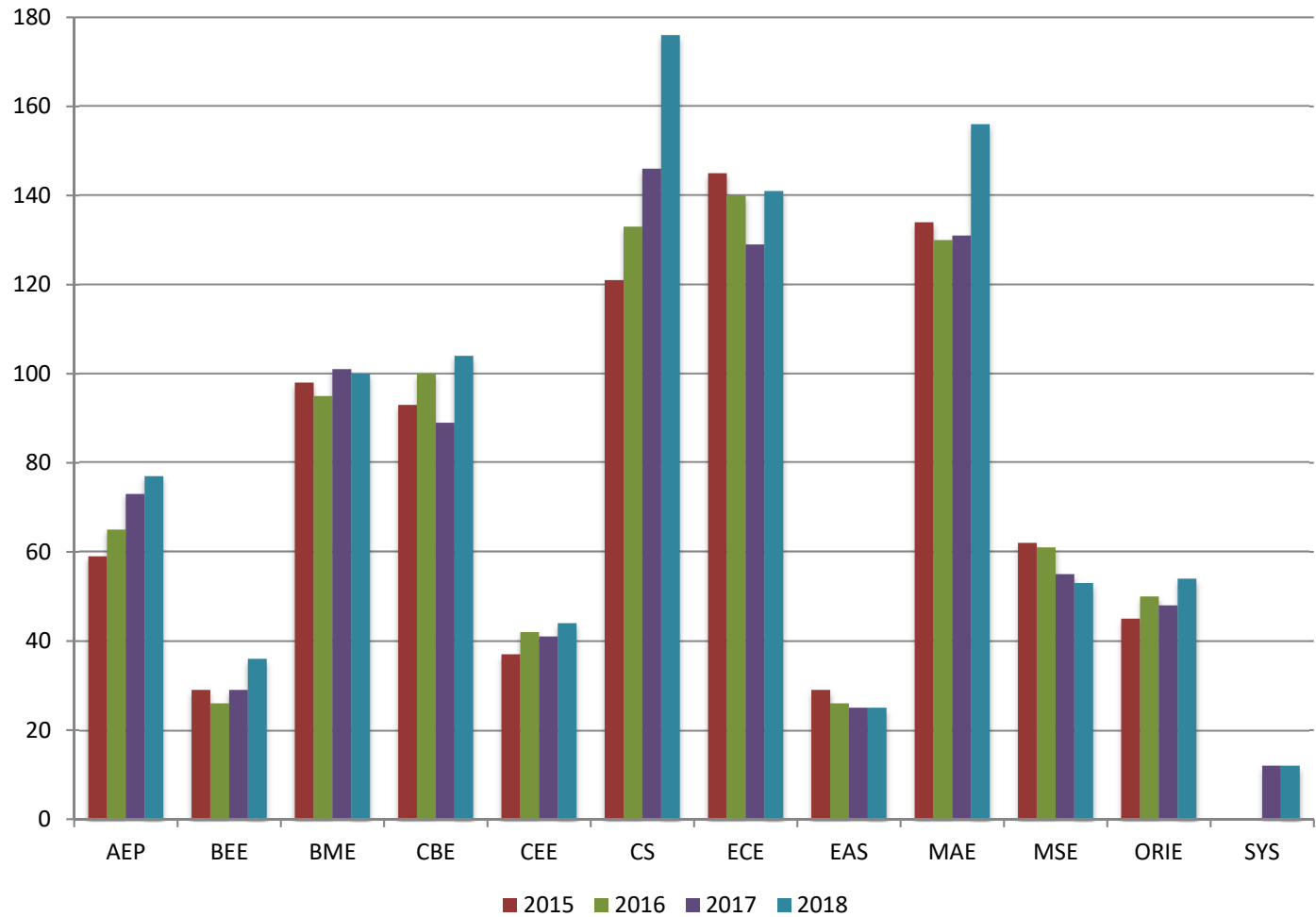
Percent Distribution of Research Expenditures



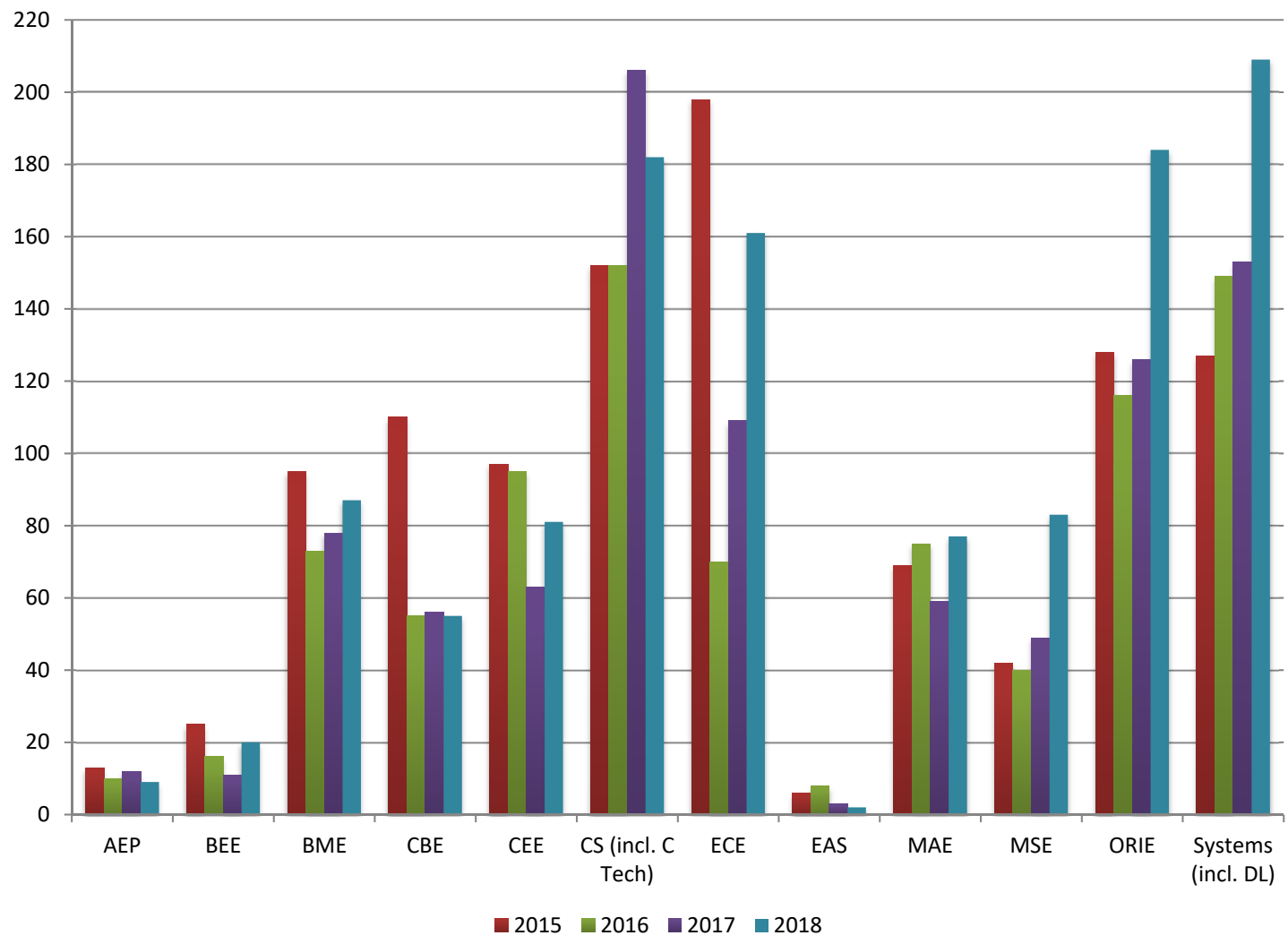
Graduate Student Enrollment



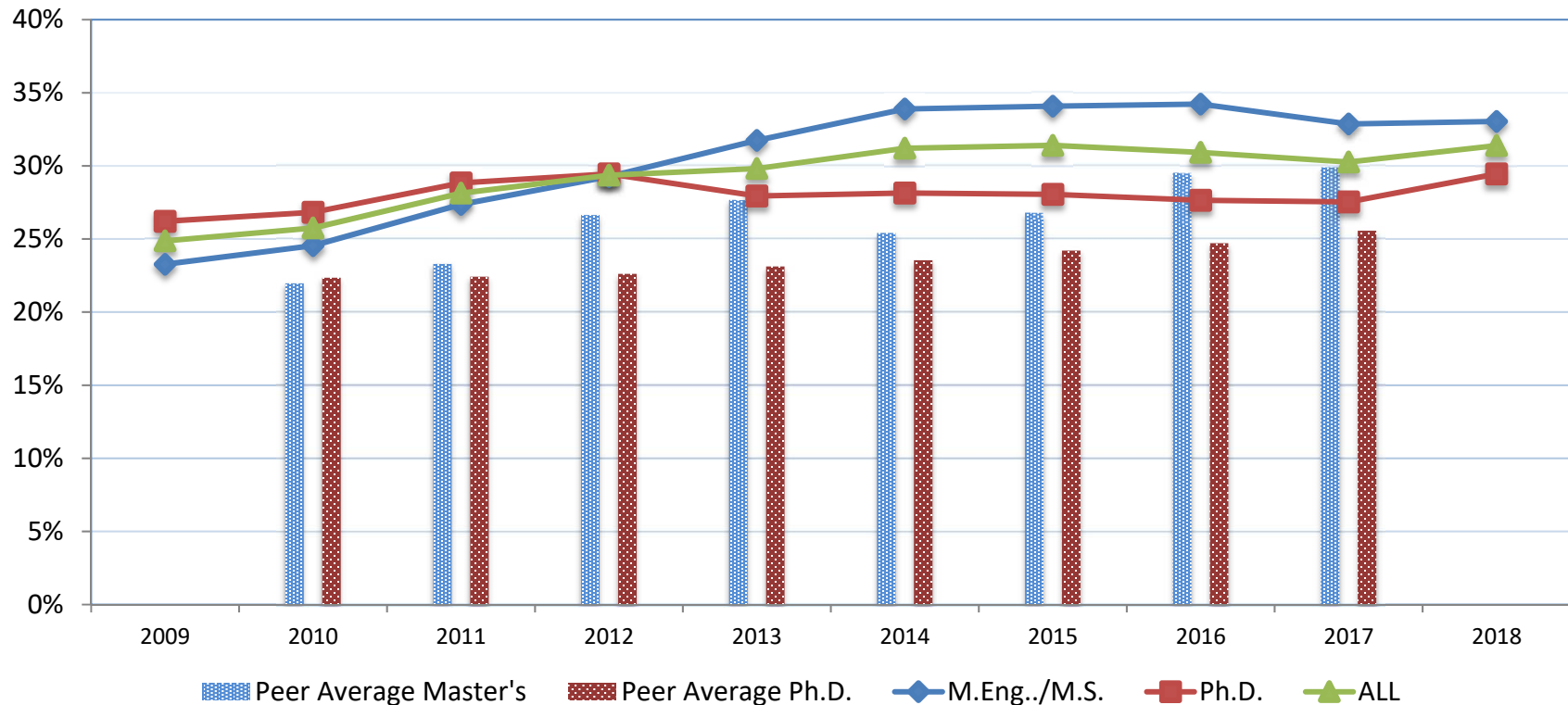
Ph.D. Enrollment by Field



M.Eng./M.S. Enrollment by Field

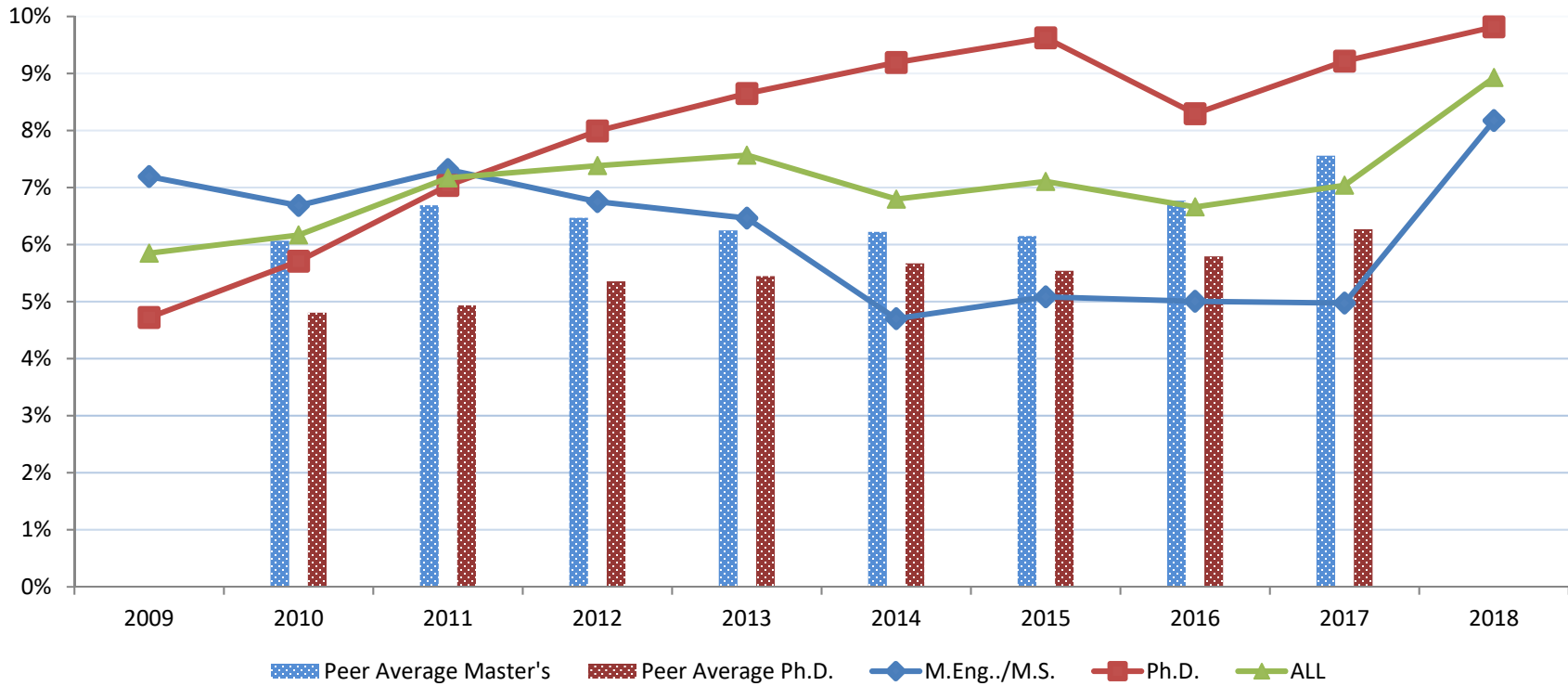


Graduate Student Enrollment Women



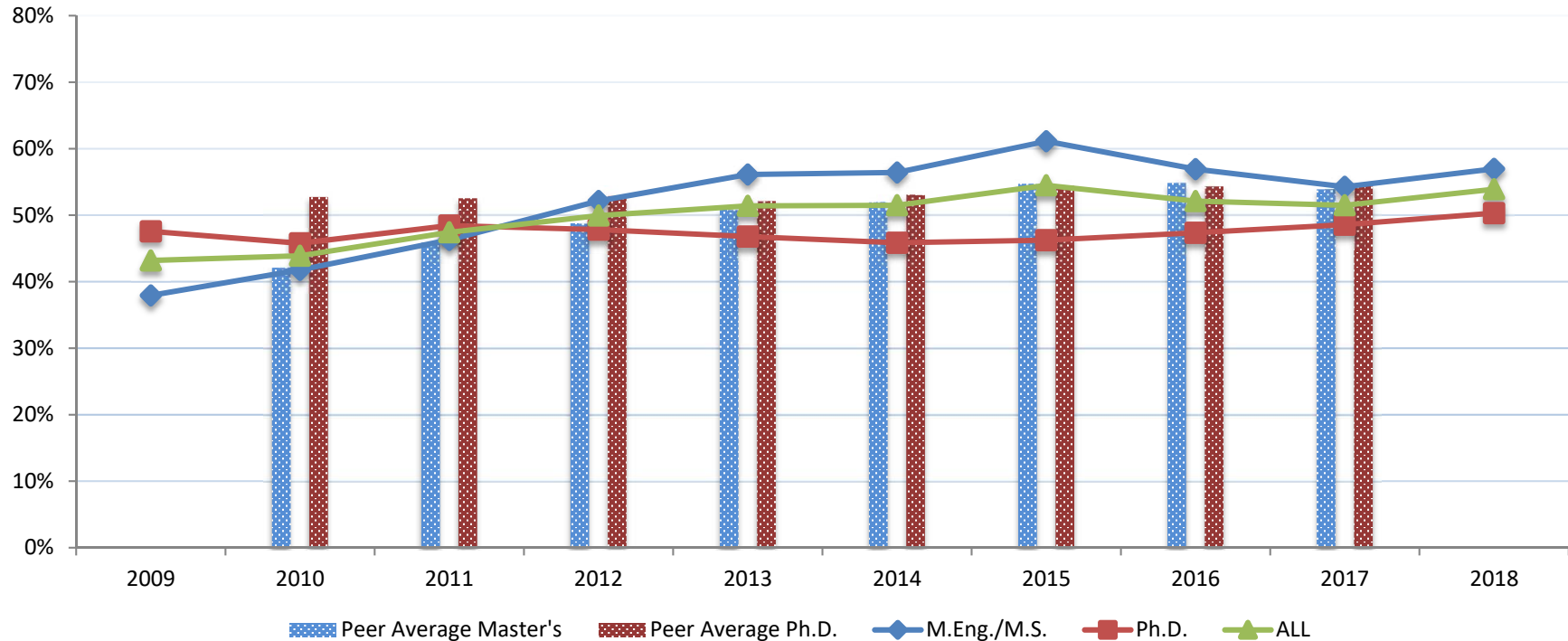
* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
 Source for peer data: ASEE data mining tool

Graduate Student Enrollment Under-represented Minorities



* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
 Source for peer data: ASEE data mining tool

Graduate Student Enrollment International



* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
 Source for peer data: ASEE data mining tool

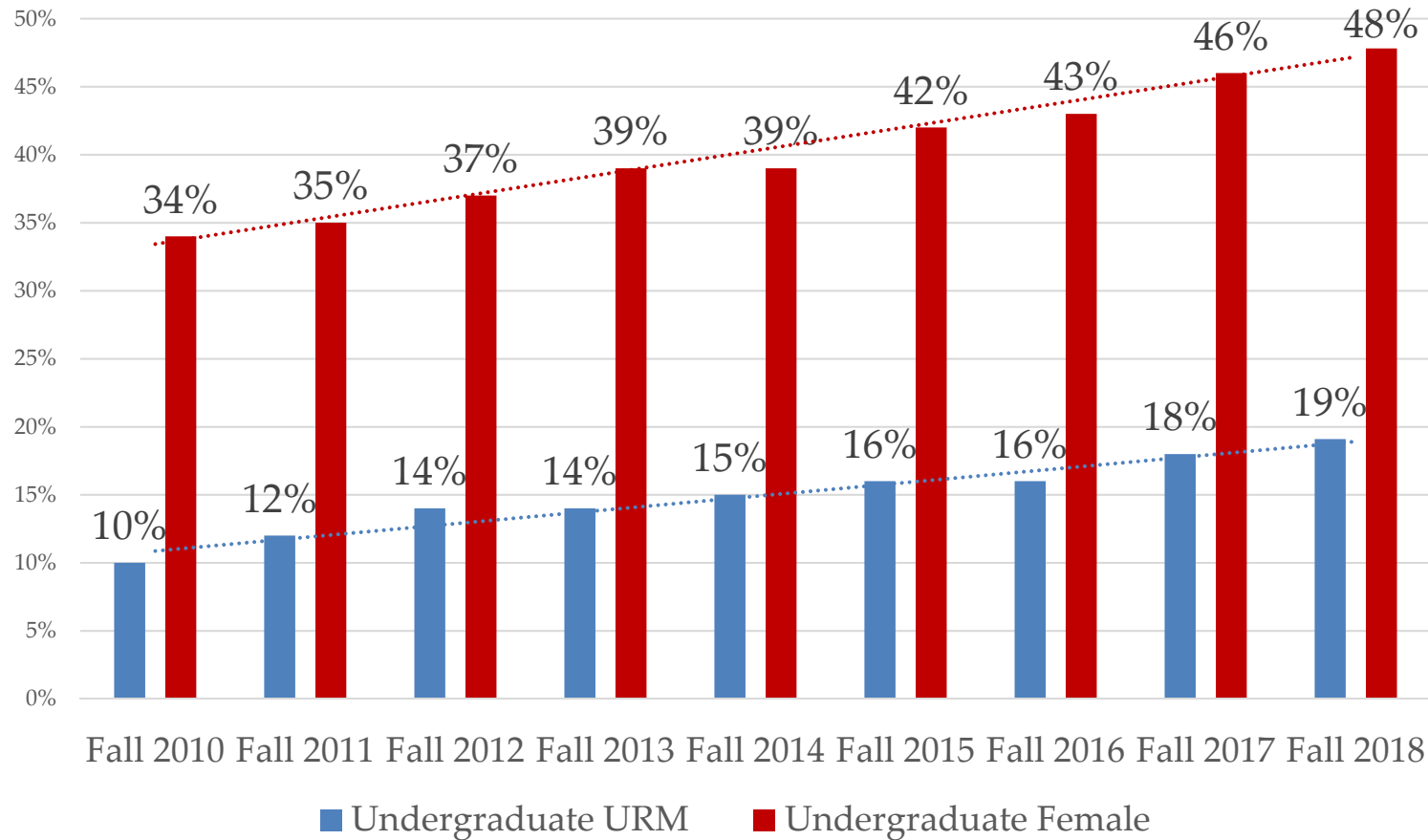
Diversity Highlights October 2018



Diversity in Engineering



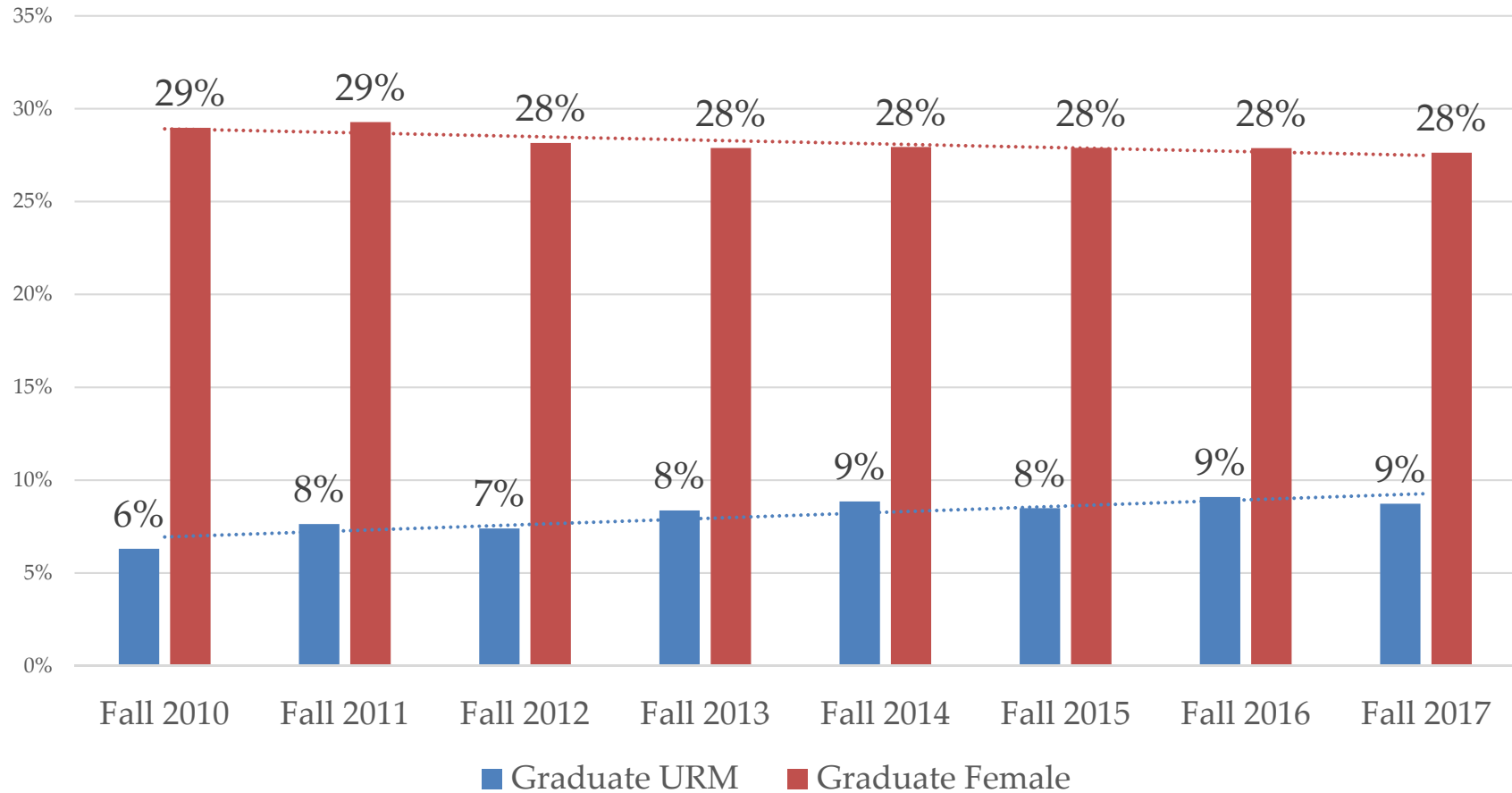
Undergraduate Enrollment



National (Fall 2017): Female 22.8%, URM 17.2%



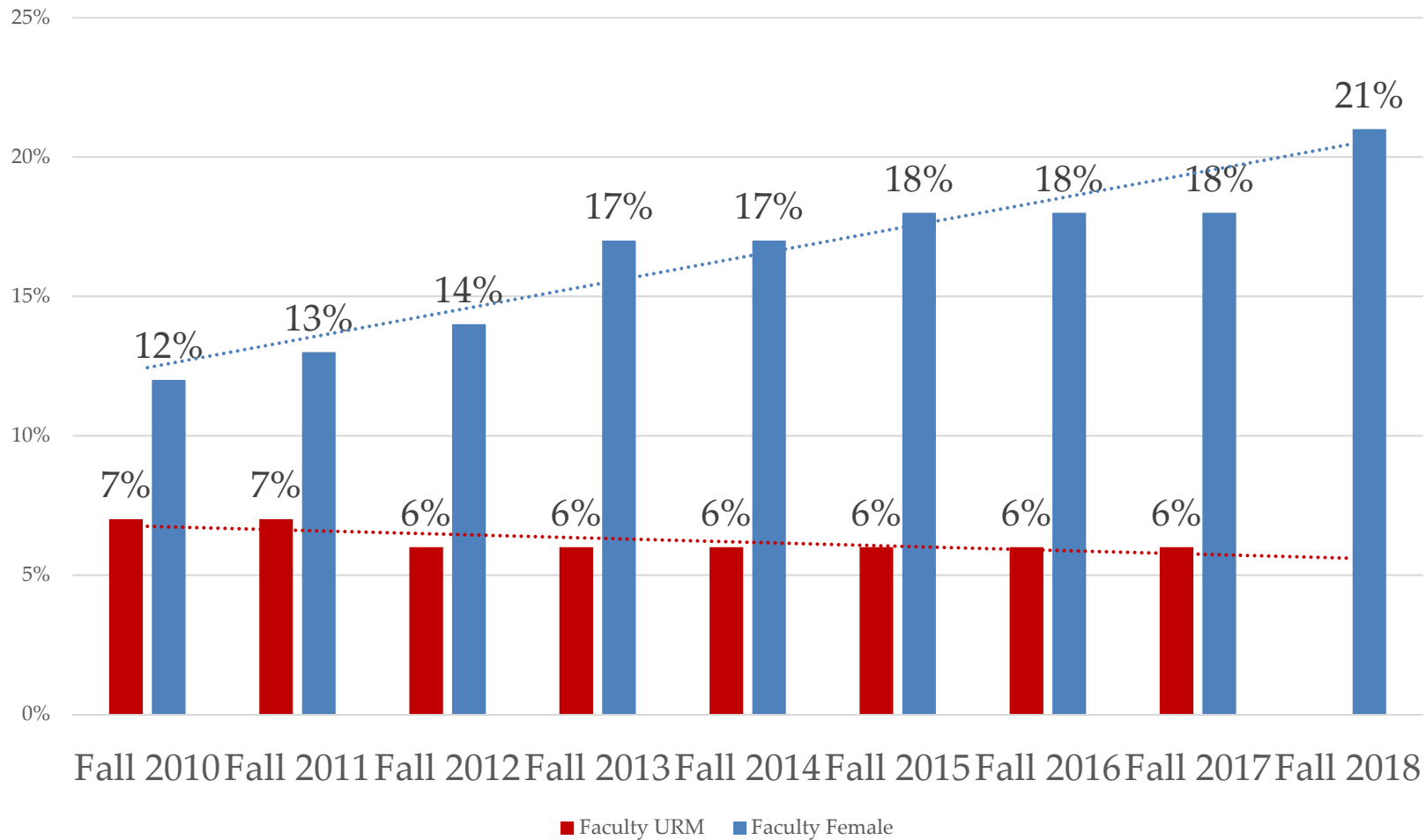
Ph.D. Enrollment



National (Fall 2017): Female 25.6%, URM 5.1%



Faculty Demographics



National (Fall 2017): Female 16.9%, URM 6.8%



Engineering Faculty Hiring, 2017-18

50%

Women Faculty Hires

21%

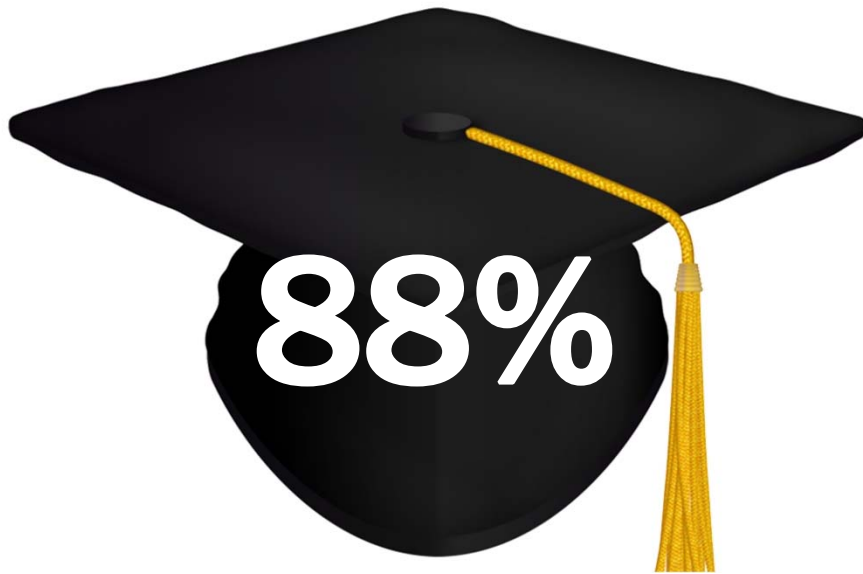
Women Faculty

20%

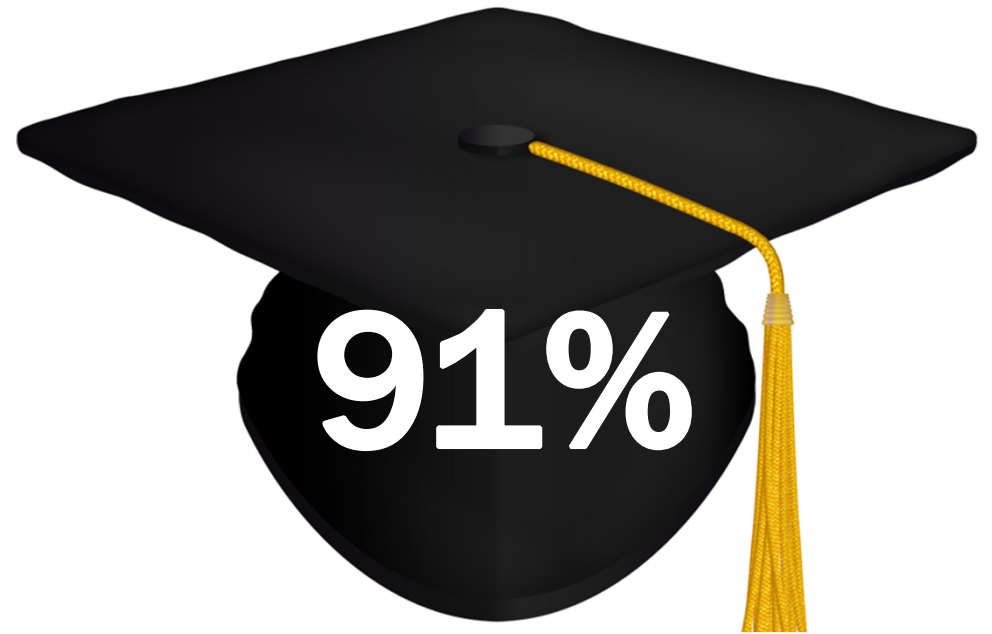
Women Faculty Hiring Goal: 20% by 2020

5-Year Engineering Graduation Rate

Undergraduate URM Cohort Admitted Fall 2012



Graduated from Engineering



Graduated from Cornell

CAP8



Admissions and Diversity Class of 2022

CornellEngineering



Slide 28

CAP8

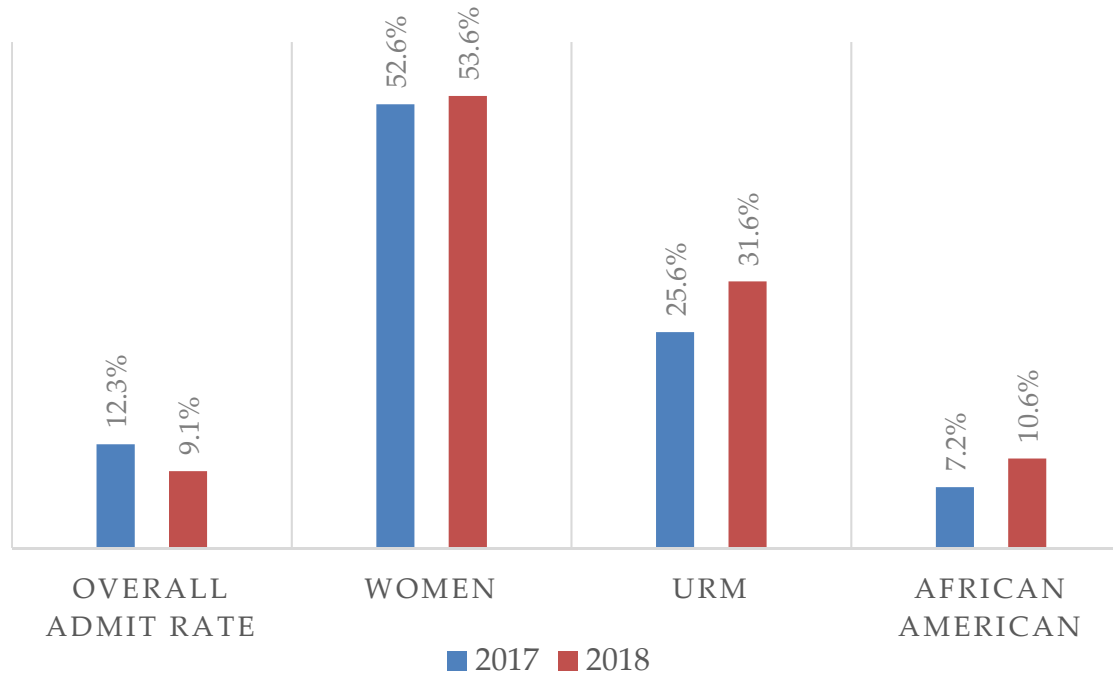
Another opportunity for a photo as a background?

Carol Ann Packard, 4/7/2018

Glimpse of our Admissions/Diversity

(*Admitted students - #Amazing!)

ADMISSION FOR THE CLASS OF 2022

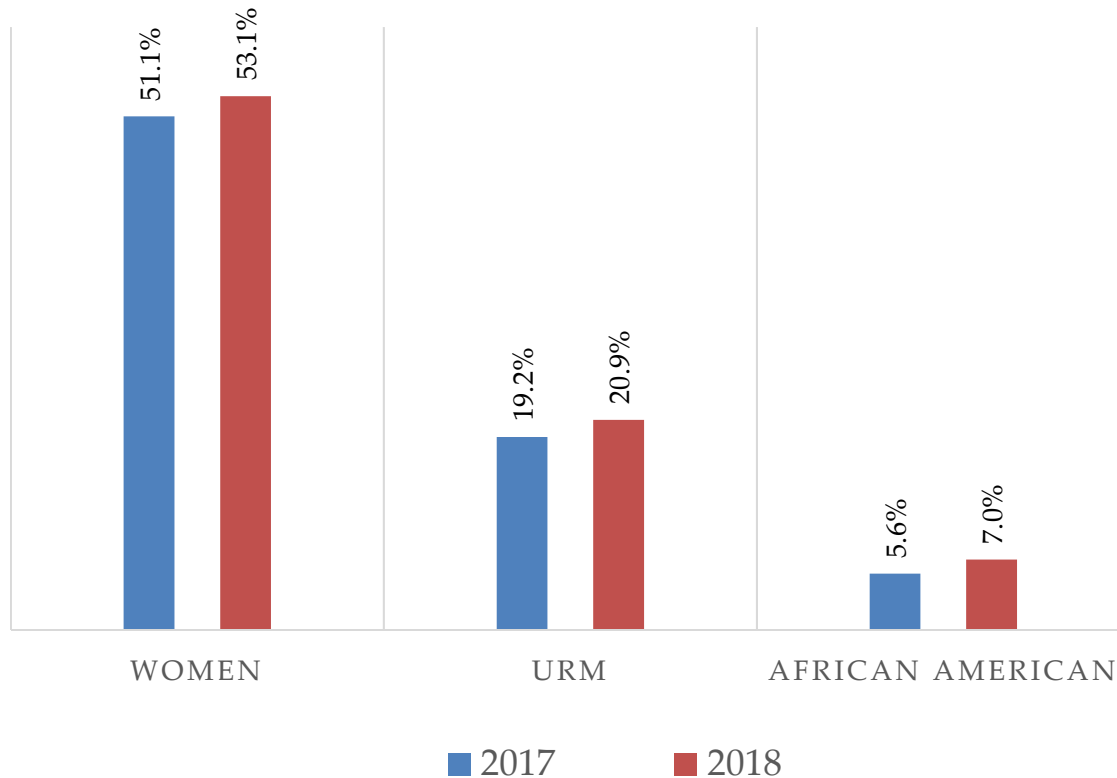


- 13,234 applications, 7.3% increase over last year
- 1,198 offers of admission, 322 fewer than last year

Glimpse of our Admissions/Diversity

(*Enrolling students - #Wowza!)

COMPOSITION OF THE FIRST-YEAR ENGINEERING CLASS: FALL 2018



- 796 enrolling first-year engineers.
- SAT Math mid-50% range for enrolling students = 770 – 800.



Engineering Career Center October 2018



Mission: *We Inspire and Empower Cornell Engineers to Create Lifelong Career Success*



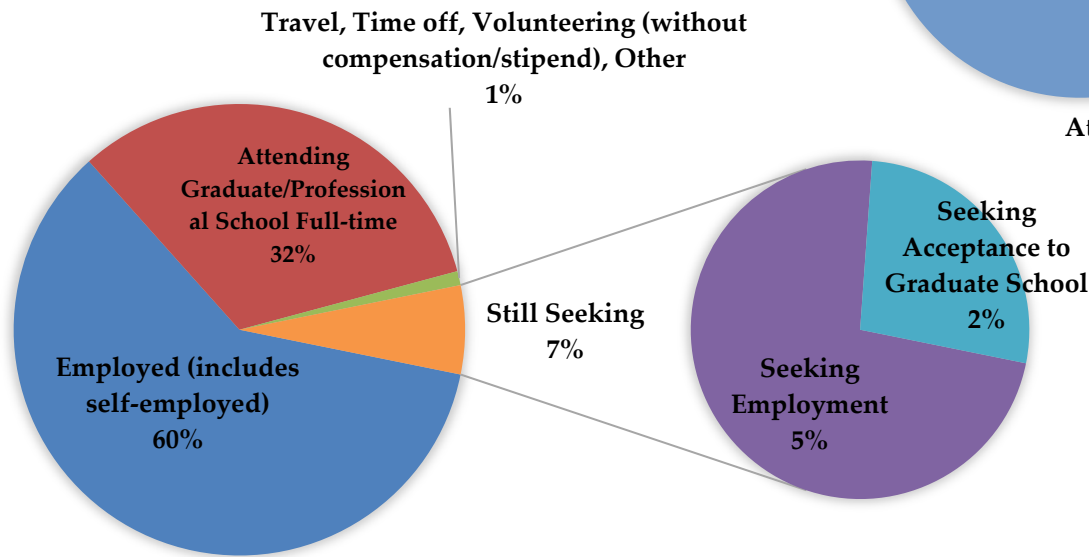
CornellEngineering
Career Center
CU @ THE INTERSECTION

Engineering Post Graduation Report – 2017

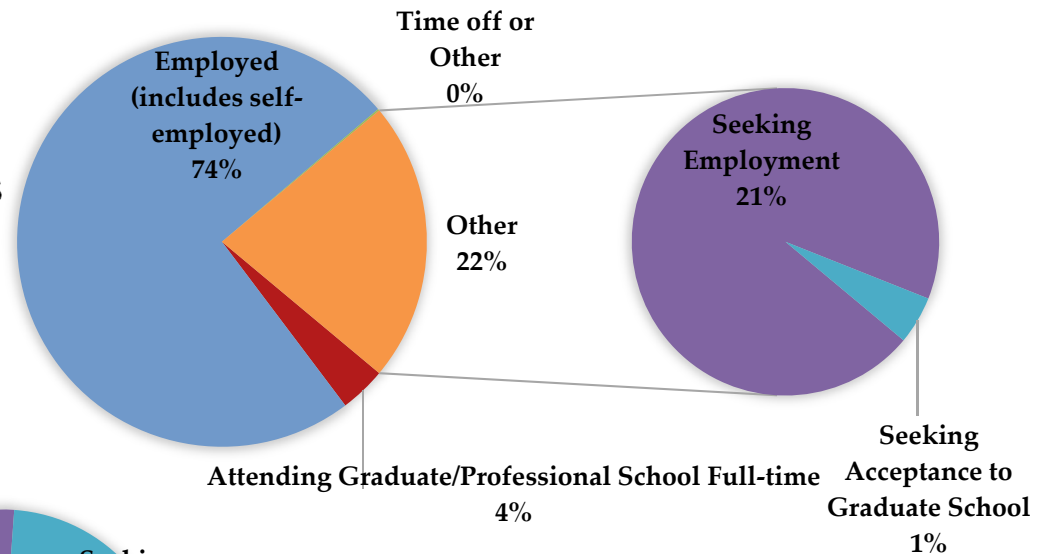
Undergraduate Outcomes

93%

of Cornell Engineering Undergraduates indicate having secured a first destination as their primary status.



M.Eng. Outcomes



78%

of Cornell Engineering M.Eng. Graduates indicate having secured a first destination as their primary status.

Engineering Post Graduation Report – 2017

Employers Hiring the Most Cornell Engineers (Based on responses from Undergraduates)

Google	20	JPMorgan Chase & Co.	7
Amazon	13	Merck & Co., Inc.	6
Microsoft	12	Bloomberg	5
Facebook	10	Deloitte Consulting	5
IBM	7	Workday	5

Employers Hiring the Most Cornell Engineers (Based on responses from M.Eng. grads)

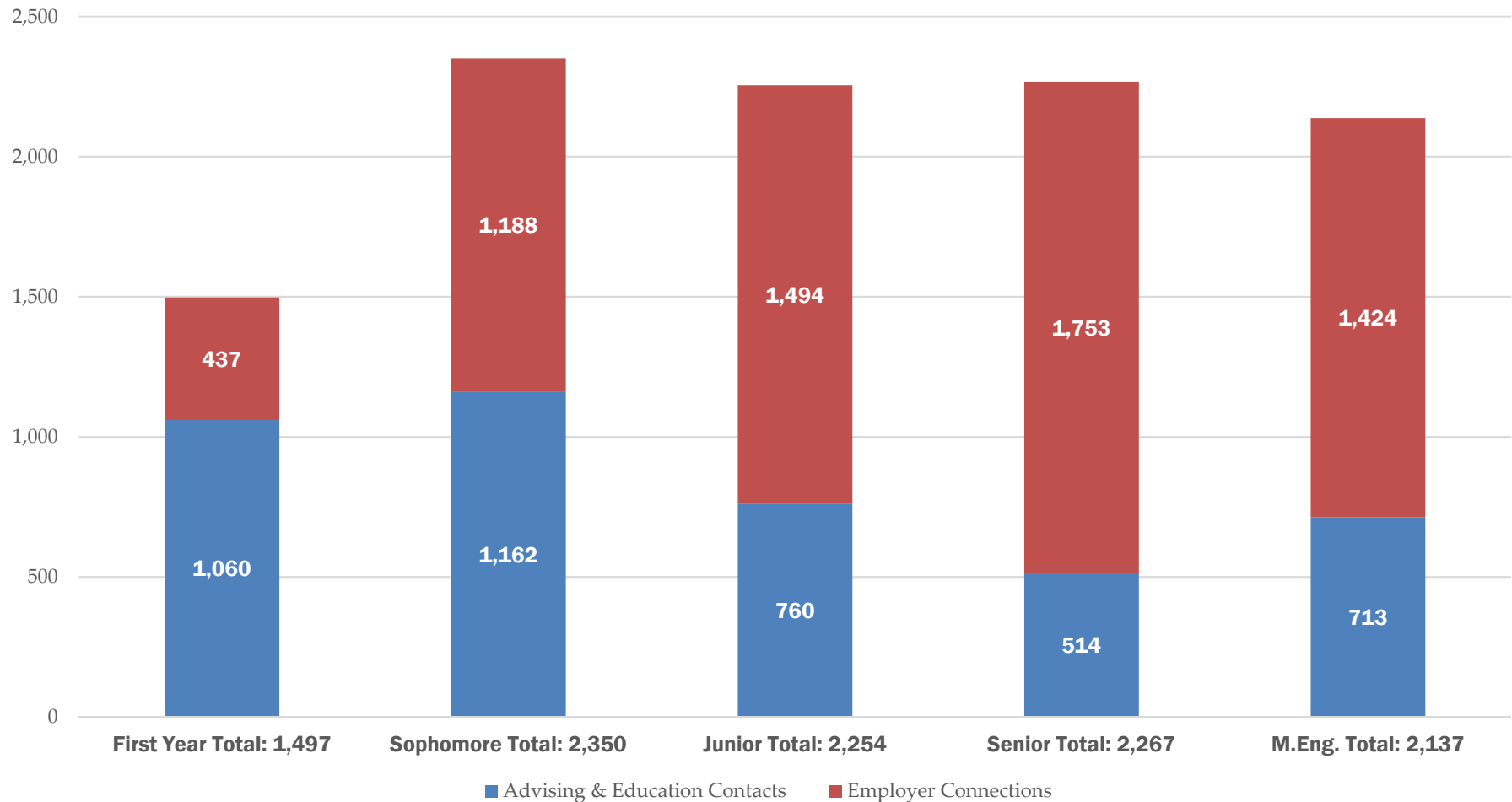
Amazon	45	Oracle Corporation	11
Lockheed Martin	19	Intel Corporation	8
Google	18	BAE Systems	6
Microsoft	12	Morgan Stanley	6
Facebook	11		

Employers Hiring the Most Cornell Engineers (Based on responses from all students (BS, M.Eng, MS, PhD))

Amazon	64	Cornell University	13	BAE Systems	7	Apple	6
Google	44	Intel Corporation	13	Booz Allen Hamilton	7	Boeing Company (The)	6
Microsoft	27	IBM	12	Goldman Sachs	7	Citigroup	6
Facebook	24	Bloomberg	10	Merck & Co., Inc.	7	EY (Ernst & Young)	6
Lockheed Martin	20	Accenture	8	MITRE	7	Workday	6
JPMorgan Chase & Co.	15	Deloitte Consulting	8	Pratt & Whitney	7		
Oracle Corporation	14	Morgan Stanley	8	Wayfair	7		

Campus Impact and Office Services

Number of Student Connections with Engineering Career Center



College Facilities Update October 2018



Facilities: Providing The Built Environment Supporting Engineering's Strategic Vision

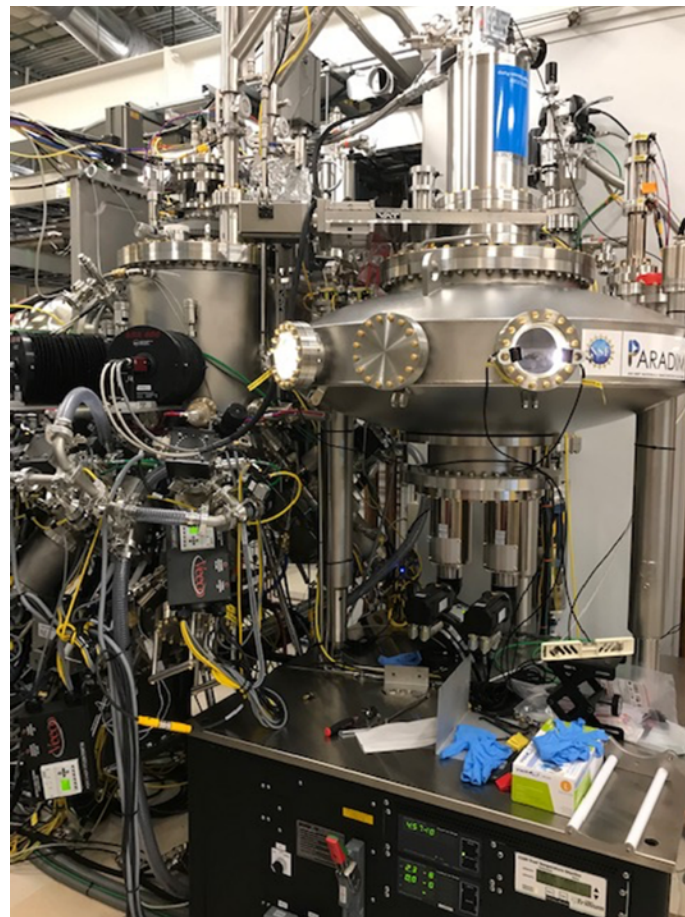
- **Functionally Enhance:**
 - Research
 - Learning
 - Student development
 - Scholarship
- **Attract and Retain Faculty**
- **Model Best Energy and Sustainability Practices**
- **Project a Forward-Looking Engineering Presence**

Master Plan Status and Current Projects

- **Research, Infrastructure, and Public Space Projects**
 - PARADIM in Duffield Hall – construction complete
 - Hollister 266 / 272 Lab renovations - construction complete
 - Phillips Hall 3rd Floor Reno and Labs – out to bid
 - Upson 354 / 358 Tian Lab Renovation – out to bid
 - Upson 472 Moridi Lab Renovation – starting design
 - Phillips 338 Afridi Lab Renovation – starting design
 - Carpenter Basement B05 for SE - design is 50% complete
- **Facility Master Plan Projects Update**
 - Olin Hall Reno Phase 1 to create CBE labs – design is 70% complete
 - Rhodes Hall first floor "block" – construction is 60% complete
 - Hollister Hall Renovation and Addition – pre-schematic about to start
- **BME Expansion for New Undergraduate Program**
 - University plan using existing spaces and additions
 - Comstock Hall Teaching Lab Clusters – starting design

Research and Public Space Projects

- Duffield –PARADIM Research Center



Research and Public Space Projects

- **Research labs for new faculty** – Hollister 266 / 272 Structures Lab and Gu Lab Renovations

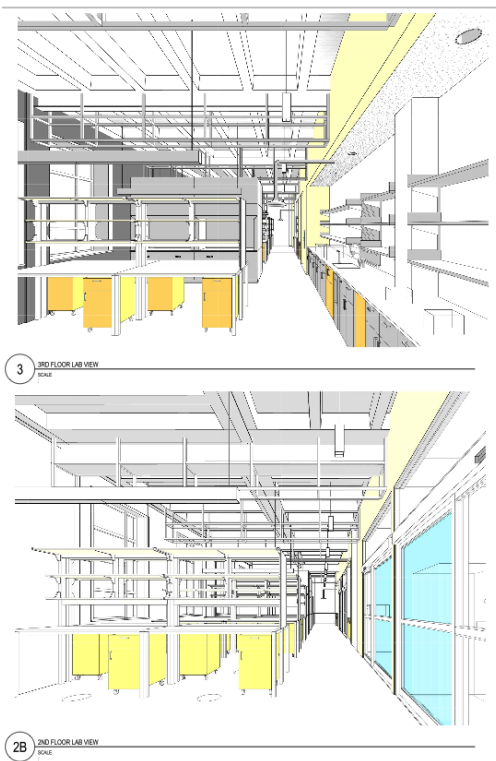


3D Printing



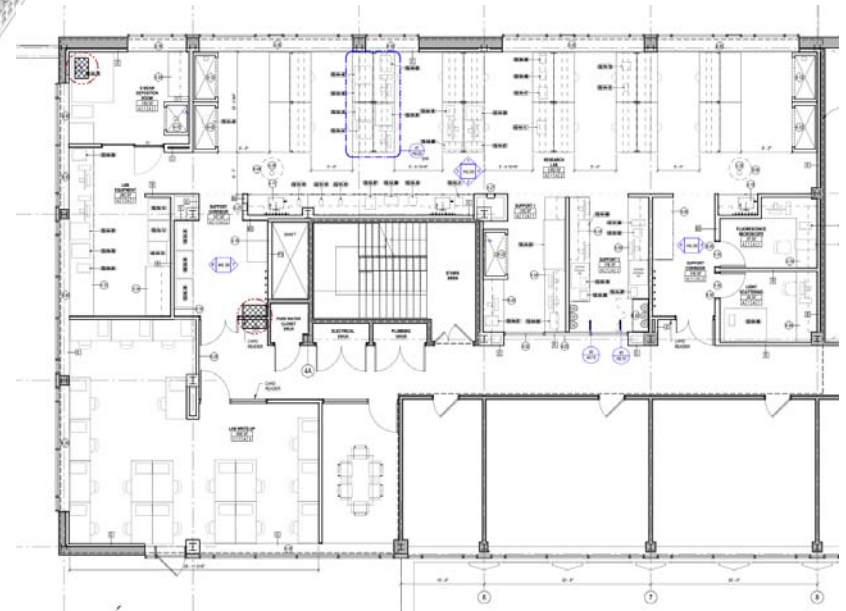
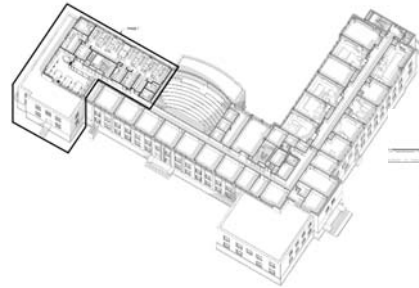
Facility Master Plan Projects Update

- Olin Hall Phase 1 Reno to create CBE labs – design is 70% complete



Three new research labs in North wing

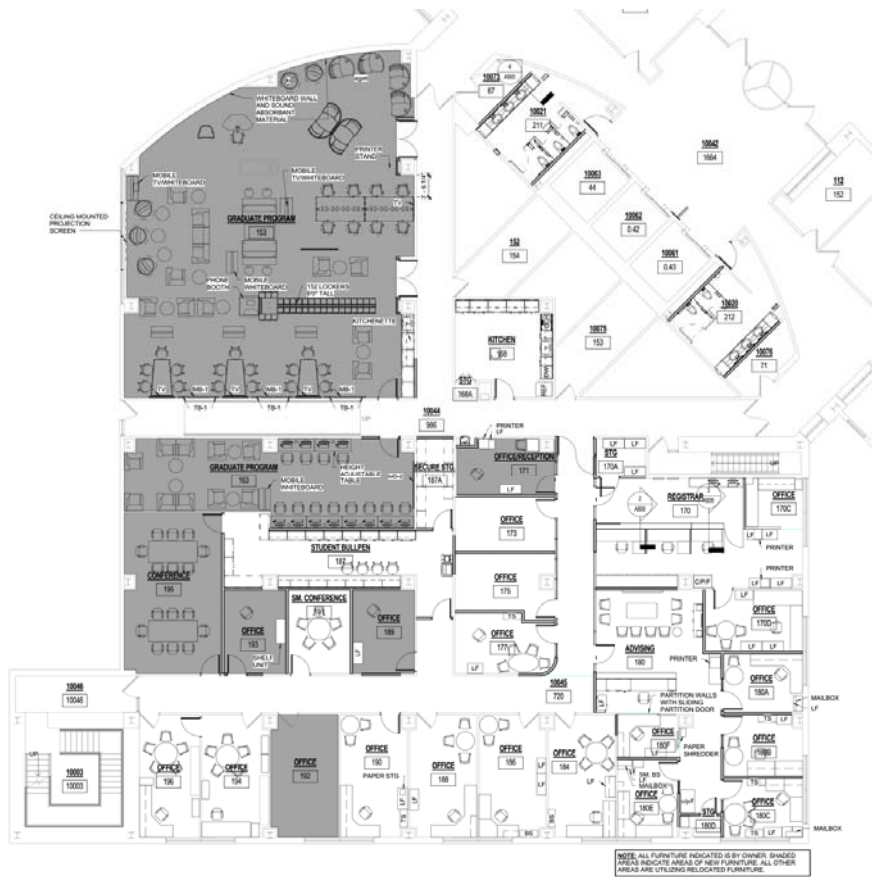
OLIN HALL - PHASE 1 RENOVATION



Third floor plan with offices and collaboration space adjacent to labs

Facility Master Plan Projects Update

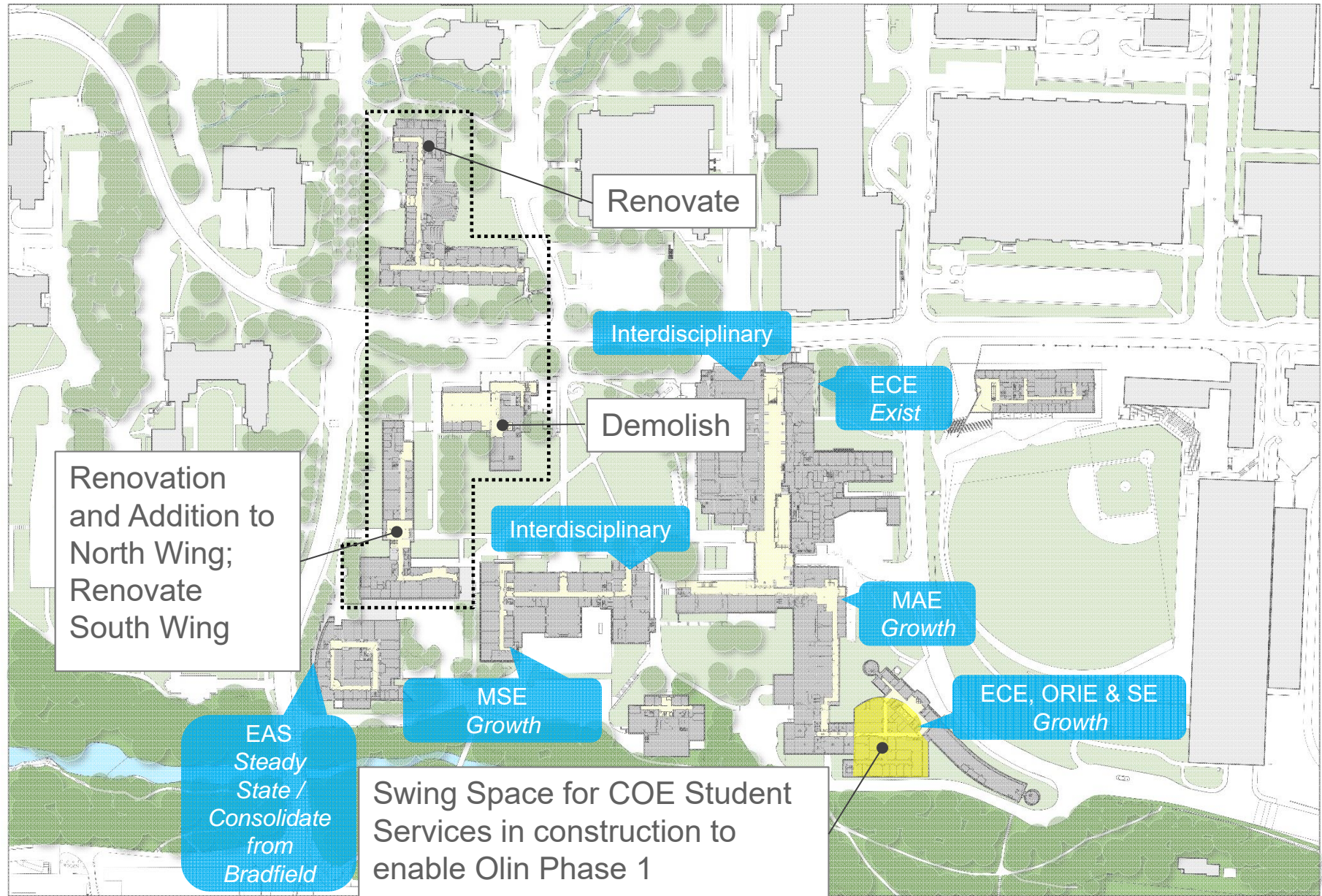
- Rhodes Hall first floor "block" – construction is 60% complete



1 FURNITURE PLAN
1/8" = 1'-0"



Master Plan Update – Hollister, Olin, Rhodes



Master Plan – Hollister Renovation and Addition

- Essentially option 3B in master plan update
- Reduction in area and scope from “preferred” scheme in master plan update
- Renovation and addition to north wing. Instead of demo and new.
- Takes advantage of existing structure
- New penthouse and mechanical systems
- Façade replacement
- Modernization of classrooms
- Modernization of labs
- Co-location of COE Administration



Master Plan – Hollister Renovation and Addition



College of Engineering Fiscal Year 2019 Giving Update

October 2018



Giving Totals for Fiscal Year 2019

Fiscal Year 2019 NG&C Goal	\$ 40,000,000
Fiscal Year 2019 NG&C Total	\$ 10,570,000
<i>26% of our FY19 goal</i>	

Fiscal Year 2019 Annual Fund Goal	\$ 2,600.00
Fiscal Year 2019 Annual Fund Total	\$ 431,734
<i>296 donors</i>	

Fiscal Year 2019
ECC Member Giving to College:
College: \$674,498
Annual Fund: \$99,498
4 donors

As of 10/18/18

Thank you!

Lance R. Collins
Dean of Engineering

October 25-26, 2018