

ENG
CORNELL ENGINEERING

College of Engineering Update

Lance R. Collins
Dean of Engineering

April 3-4, 2014



Agenda

- General updates
 - New Leadership
 - New Faculty, Awards and Searches
 - Research Expenditures, Grad Student Support, Patents
 - Rankings
 - Campaign
- Students
 - Career Placement and Average Undergrad Salaries
 - Co-op and Career Services
 - DPE Highlights
 - Project Team Highlights
- Facilities Update
- Cornell Tech / Hot Spots / Start-Up New York
- Branding Update

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Director of Electrical and Computer Engineering



Clifford Pollock
Director of Electrical and
Computer Engineering

- Joined Cornell in 1983.
- Ilda and Charles Lee Professor of Engineering
- Fellow of the IEEE and Optical Society of America
- Former Director of the Masters of Engineering Program, Director of Electrical and Computer Engineering (2001-08), Associate Director and Academic Program Leader for Duffield Hall
- Degrees received
 - B.S. Rice University, 1976
 - M.S. Rice University, 1979
 - Ph.D. Rice University, 1981
- Research Focus – optoelectronics and laser devices

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Chair of Biomedical Engineering



Marjolein van der Meulen
Chair of BME

- Associate Dean of Engineering since 2012
- Joined Cornell in 1996
- Swanson Professor of Biomedical Engineering, Sibley School of Mechanical & Aerospace Engineering
- Member of CU-ADVANCE Center Team
- Former Associate Director for Graduate Affairs and Director of Graduate Studies for Mechanical Engineering
- Degrees received
 - BS (Mechanical Engineering), Massachusetts Institute of Technology, 1987
 - MS (Mechanical Engineering), Stanford University, 1989
 - Ph D (Mechanical Engineering), Stanford University, 1993
- Research Focus - Orthopaedic biomechanics, mechanobiology

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Assistant Dean For Alumni Affairs and Development



Michael Moyer
Assistant Dean for Alumni
Affairs and Development

- Joined Cornell in 2008.
- Former Assistant Dean for Alumni Affairs and Development, Cornell College of Architecture, Art and Planning.
- Previously Associate Director for Development at Johns Hopkins University.
- Degree received
 - B.S., Business Management and Political Science, Trinity University, San Antonio, Texas.

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New Faculty

(Arrivals Spring – Summer 2014)



Benjamin Cosgrove
Asst. Professor, BME



Geoffrey Abers
Professor, EAS



Rebecca Barthelmie
Professor, MAE



Dimitry Savransky
Asst. Professor, MAE



Daniel Selva
Asst. Professor, MAE



Serge Belongie
Professor, CS/Cornell Tech

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Faculty Moving to Cornell Tech



Ramin Zabih
Professor, CS



Rajit Manohar
Professor, ECE



Rafael Pass
Associate Professor, CS

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National Academy of Engineering



Jerry Stedinger
Professor of Civil and
Environmental Engineering
Elected NAE 2014

- Joined Cornell faculty in 1977.
- Cited for his work in “statistical methods for flood risk assessment and optimization methods for hydropower system management”.
- Degrees received
 - B.A., Applied Mathematics, University of California, Berkeley, 1972
 - Ph.D., Environmental Systems Engineering, Harvard University, 1977

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Major Faculty Awards

- **2013 Harvey Prize for Science and Technology, Technion**
 - Jon Kleinberg (CS)
- **2013 NSF Special Creativity Award, Division of Materials Research**
 - Lynden Archer (CBE)
- **2014 National Engineering Award, American Association of Engineering Societies**
 - Christine Shoemaker (CEE)
- **2014 Margaret Petersen Award from the ASCE EWRI**
 - Christine Shoemaker (CEE)
- **Presidential Early Career Award for Scientists and Engineers**
 - Noah Snively (CS)
 - Greg Fuchs (AEP)

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Major Faculty Awards

- **Fellows, American Association for the Advancement of Science**
 - Harold Craighead (AEP)
 - Carla Gomes (CS)
- **Fellow, Institute for Operations Research and the Management Sciences (INFORMS)**
 - David Shmoys (ORIE)
- **INFORMS 2013 Frederick W. Lanchester Prize**
 - David Shmoys (ORIE)
 - David Williamson (ORIE/IS)
- **Fellow, American Institute of Chemical Engineers**
 - Paul Steen (CBE)
- **Fellow, Association for Computing Machinery (ACM)**
 - Jon Kleinberg (CS)
 - Andrew Myers (CS)
 - David Williamson (ORIE/IS)

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Major Faculty Awards

- **Fellow, Institute of Electrical and Electronics Engineers (IEEE)**
 - Yi Wang (BME)
- **Fellow, American Institute for Medical and Biological Engineering College**
 - Matthew DeLisa (CBE)
- **Fellow, Institute of Navigation**
 - Mark Psiaki (MAE)
- **Stephen H. Weiss Presidential Fellowship**
 - Ashim Datta (BEE)

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Entrepreneur of the Year 2014



Greg Galvin
Rheonix &
Mezmeriz Inc.

- Greg Galvin, M.S. '82, Ph.D. '84, MBA '93, chairman and CEO of Rheonix Inc. and Mezmeriz Inc.
- Co-founder and former CEO of Kionix Inc.
- Named Cornell Entrepreneur of the Year 2014.
- To be honored April 10-11 during [Entrepreneurship@Cornell](#)'s annual conference on campus.
- ECC member since 2009 and Vice-Chair of ECC.

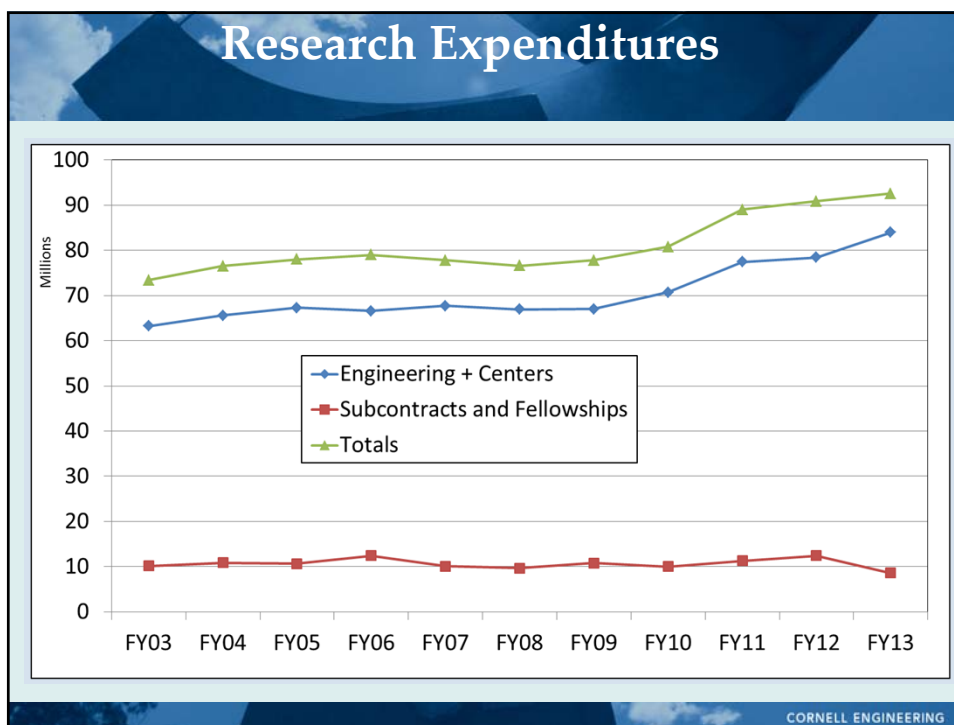
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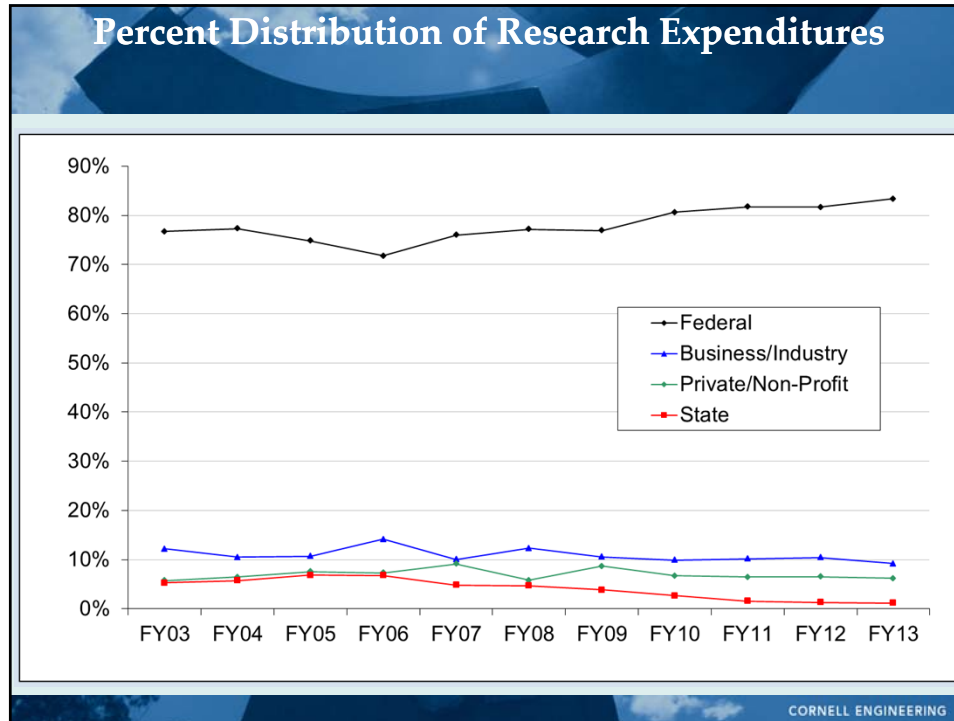
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CoE Searches 2013-2014

Department	Searches	Status
AEP	1	1 offer pending
BEE	1	1 ongoing search
BME	0	
CBE	0	
CEE	2	1 offer declined; 1 pending, search continues
CS	1	2 offers pending
EAS	0	
ECE	2	2 offers pending
MAE	0	
MSE	0	
ORIE	1	2 offers declined; 2 offers pending

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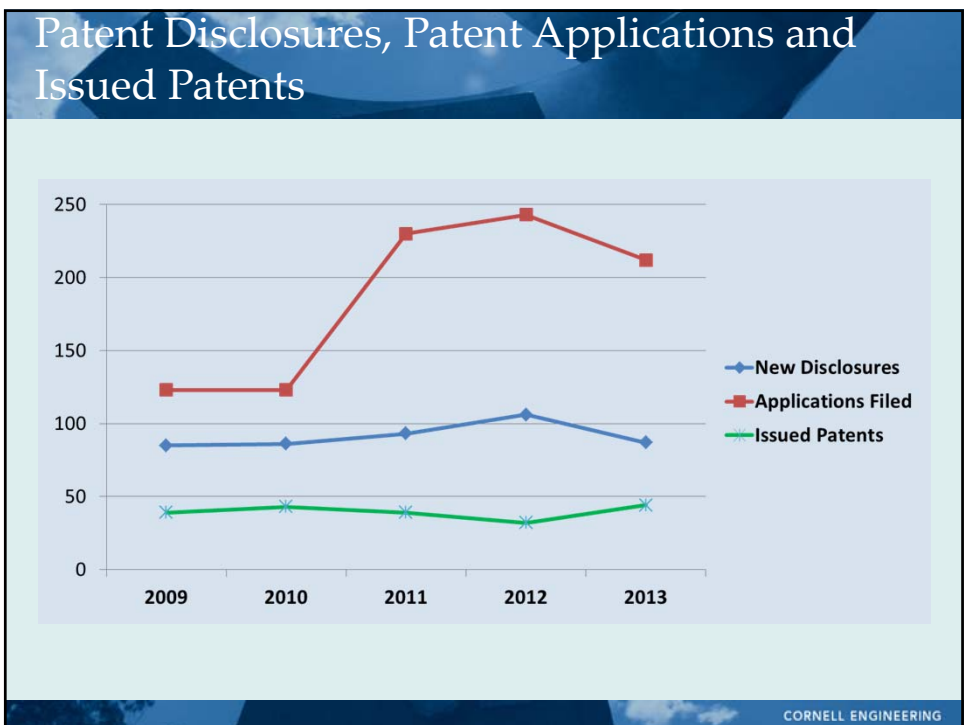
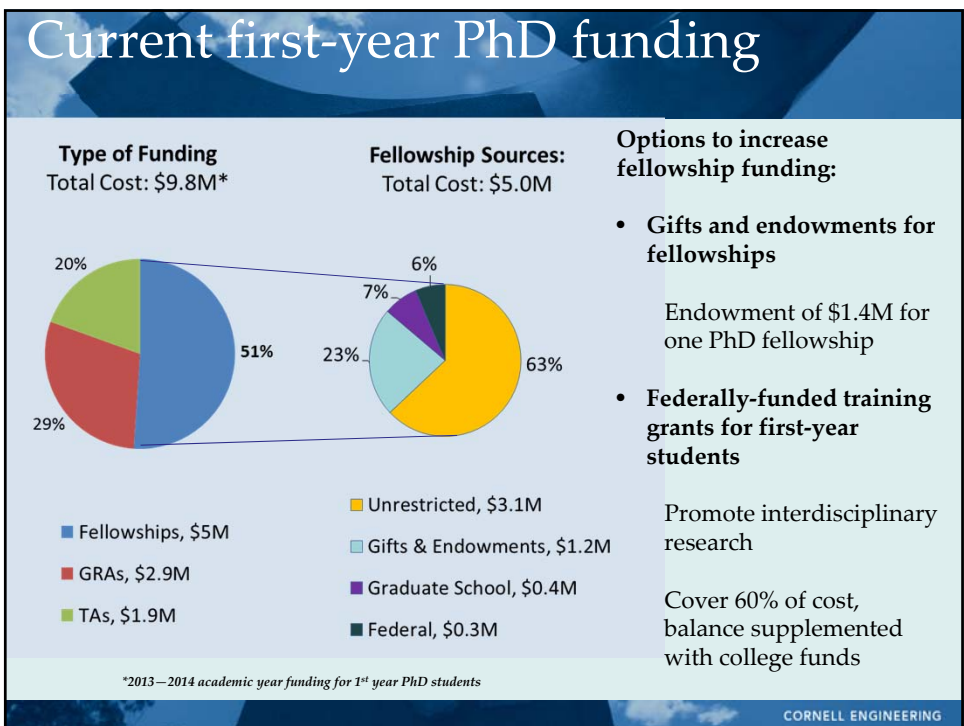


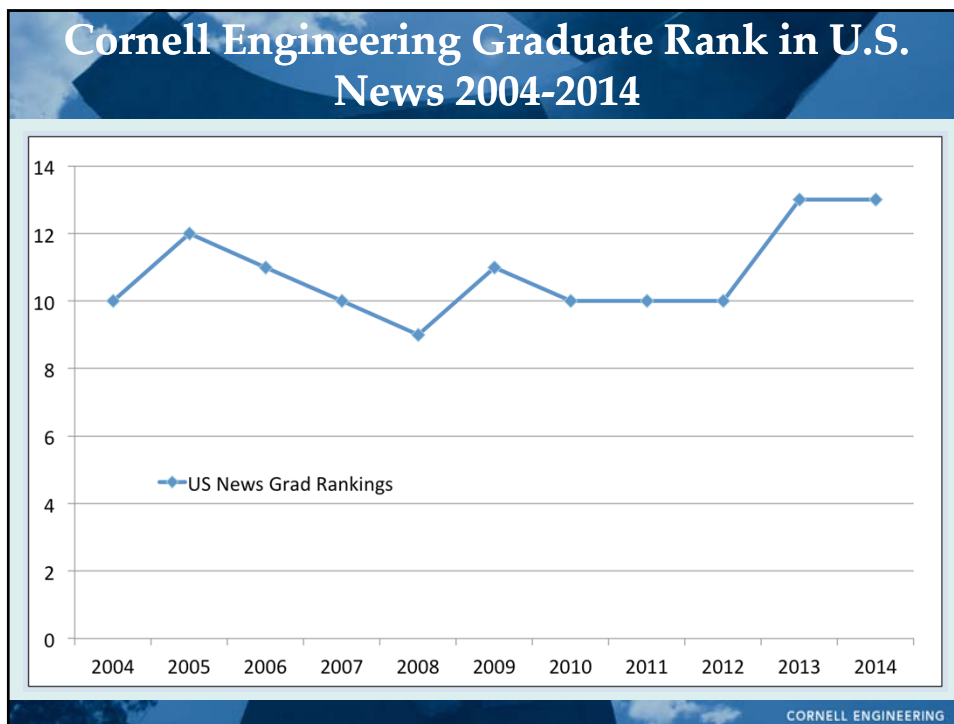
First-year PhD Funding

- Goal:
 - Increase funding to support all 1st year PhD students on fellowships

- Concerns regarding 1st year students on funded on TAs and GRAs:
 - Insufficient time to build relationships with faculty
 - Poor research specialization choices
 - Lack of knowledge about fields
 - Poor yield against peer institution fellowship offers
 - Attrition
 - Loss to College of approximately \$3.7M/year
 - 45% of total attrition occurs in 1st year
 - PhD production factors in college ranking

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Cornell Engineering Graduate Program Specialty Rankings 2010 - 2014

Year Rankings Released	2010	2011	2012	2013	2014
College of Engineering	10	10	10	13	13
Aerospace	12	11	11	11	9
Bio/Agriculture	4	4	3	3	4
Biomedical	20	20	15	20	15
Chemical	13	13	17	16	18
Civil	10	10	8	10	9
Computer Engineering	NR	8	9	5	8
Electrical	9	9	9	7	10
Environmental	14	14	12	11	11
Industrial	8	8	10	7	7
Materials	8	8	10	7	6
Mechanical	8	8	9	9	8

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**College of Engineering
Cornell Now Campaign Update**

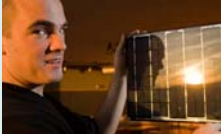



Lance R. Collins
Dean of Engineering

April 2014

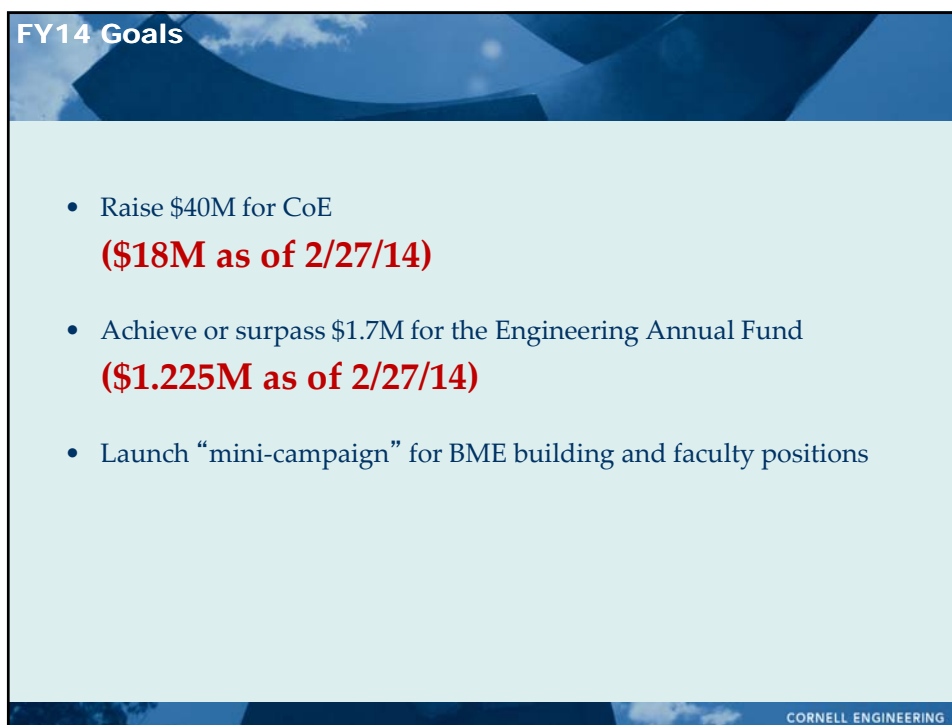
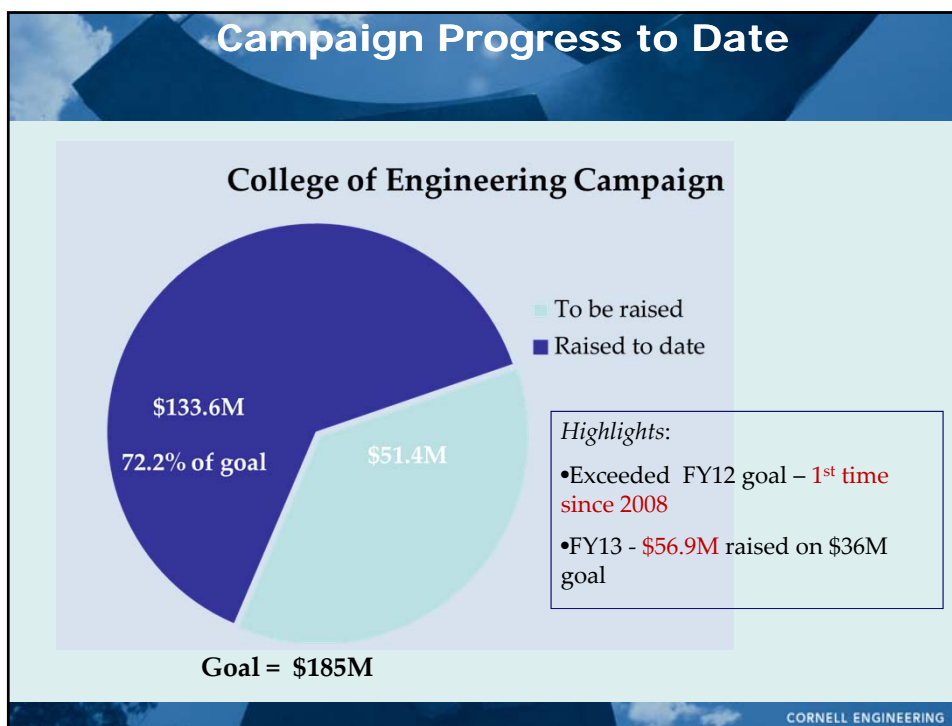


College of Engineering Campaign Priorities

❖ Bioengineering/BME	\$35M
❖ Graduate Fellowships	\$30M
❖ UG Scholarships	\$11.75M
❖ Experiential and Entrepreneurial Learning	\$10M
❖ Faculty Lines	\$9M
❖ Faculty Renewal	\$7.5M
❖ Energy & Sustainable Development	\$9M
❖ Faculty Diversity	\$1M
❖ Physical Sciences Bldg.	\$1.25M

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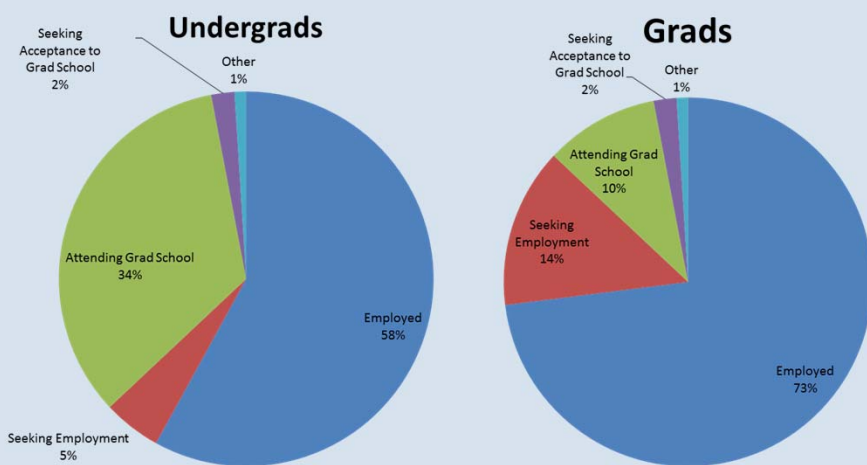
FY14 Advisory Council Giving

FY 2014 Advisory Council
Donor Participation
As of January 16,
2014

Advisory Council	# of Members	% C/U AF Donors	% C/U Overall Donors	% Overall AF Donors	% Overall Cornell Donors
A&S	54	22.7%	32.0%	22.7%	41.3%
AAP	31	18.8%	31.3%	25.0%	46.9%
ALS	45	37.0%	41.3%	45.7%	47.8%
ATHLETICS	49	12.0%	40.0%	32.0%	62.0%
CIS	9	11.1	44.4%	11.1%	66.7%
ENG	34	7.1%	45.2%	16.7%	57.1%
HOTEL	41	14.6%	39.0%	19.5%	43.9%
HUMEC	36	27.8%	36.1%	30.6%	50.0%
ILR	56	27.9%	39.7%	33.8%	50.0%
Johnson	49	10.2%	13.3%	10.2%	16.3%
LAB of O*	29	43.3%	46.7%	46.7%	53.3%
LAW	62	41.9%	71.0%	48.4%	71.0%
LIBRARY	35	23.3%	48.8%	34.9%	55.8%
MUSEUM	42	24.5%	32.7%	42.9%	63.3%
PLANTATIONS	21	57.1%	81.0%	71.4%	85.7%
VET	22	50.0%	68.2%	50.0%	72.7%
Board of Trustees	60			47.0%	70.0%
University Council	832			27.1%	50.2%
Cornell Alumni Association	54			37.0%	57.4%

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Career Placement Update

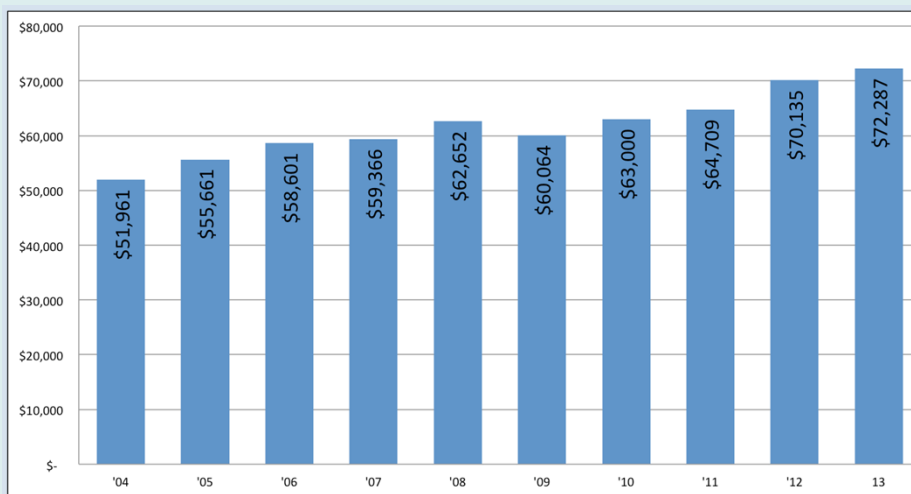


Class of 2013 as of Feb 2014

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Average Undergraduate Salaries

Cornell placed 7th on Forbes "10 Best Colleges for your Bank Account"



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ENGINEERING CO-OP & CAREER SERVICES INITIATIVES

ENTREPRENEURISM IMPACT

- Kessler Fellows Program:** Additional \$1M pledge for Program Support
- Student Business of the Year:** Engineering orgs **SUNN** and **TuneTap** contending for Eship@Cornell inaugural competition for \$5K Prize - April 11
- Co-sponsor for Fall START @ A STARTUP CONFERENCE in NYC:** Recruitment event for West Coast startups affiliated with Sequoia Capital
- ThinkBIG Startup Trek** – Early stage startups recruited interns / full-time
- Increased Startup interests** will require more video interview equipment

OPERATIONS

- BS Engineering Average Salaries** increased 3.1% to \$72,287 in 2013
- 108 Employers & 1,862 students** attended Feb. 2014 Tech Career Fair. This included 26 startups, 3 operated by current Cornell students.
- Hosted GE China CEO:** 200 of 300 total GE China job applicants from Cornell
- Connecting with Governor's Chief of Staff for State of Michigan** to engage Cornell Engineers in anticipated massive tech job growth
- ENGRG 2350 "Career Development for Engineers"** 2-credit course Sp14 25 students registered

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DPE Highlights - Undergraduate

- Cornell University Engineering Success (CUES) program funded by NSF – focus on retention of URM and first generation undergraduate students. \$910k award.
- Upstate Louis Stokes Alliance for Minority Participation renewed by NSF – foci are the Scholars and Summer Research Programs.
- The Ryan Scholars Program completed its third full year. Implemented a new Spatial Visualization Course for the Ryan Scholars in Fall '13. The course will be integrated into the Pre-Freshmen Summer Program in Summer '14.
- DPE collaborated with university, community, and corporate partners to host the STEM Men of Color Symposium in February '14. Participants included precollege, undergrad and grad students, Faculty, Staff, and community partners.
- Supported over 80 students to attend the national conferences for NSBE, SASE, SHPE, & SWE.

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DPE Highlights - Graduate

- In collaboration with the Graduate School and the Office of Faculty Development & Diversity, DPE will host the Empowering Women in Science & Engineering (EWISE) Symposium in May '14.
- Cornell named a University Center of Exemplary Mentoring (UCEM) by the Sloan Foundation - \$1.2M award provides support for nine 3-year fellowships each year for entering URM Ph.D. students.
- Five Cornell Sloan/Colman Fellows were awarded NSF Graduate Research Fellowships in Spring 2013 – 22 total URM Engineering Ph.D. students have NSF Graduate Research Fellowships.
- Collaborating with the Graduate School and Engineering DGSs to expand best practices in recruitment of URM and women graduate students.

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Student Project Teams



Cornell iGEM

(International Genetically Engineered Machine)

- Wins gold medal for organofoam at the 2013 North America Jamboree in Toronto and advanced to the final competition at MIT in November.
- Also received the Best Human Behaviors Outreach Award.
- Cornell iGem has developed a toolkit of genetic parts for engineering complex fungi.
- Organofoam is inspired by Upstate New York-based Ecovative Design, which uses lignin-degrading fungi and plant matter to produce a cost-effective, biodegradable, and sustainable Styrofoam substitute, which they call Mushroom[®] Packaging.

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Student Project Teams



CUSat

(Cornell University Satellite)

- CUSat launched on SpaceX Falcon 9 Rocket.
- CUSat is a nanosatellite designed and built by engineering students to help calibrate global positioning systems (GPS) with pinpoint accuracy.
- Launched successfully on the Falcon, which lifted off from Vandenberg Air Force Base in California, Sunday, Sept 29, 2013.
- Mission considered a success!

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Facilities

- College Facilities Master Plan implementation underway
- Major renovations across the quad
 - Kimball Hall – wet labs
 - Upson Hall – non-BME growth
 - Re-clad older buildings
 - Hollister, Olin & Snee Hall Labs – CEE, CBE, EAS
 - Others: Admin/Student Services, Instruction, Project Teams
- New construction
 - Gates Hall – Move-in completed – new home for CIS, CS, IS
 - New BME building – supports new undergraduate program

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Facilities

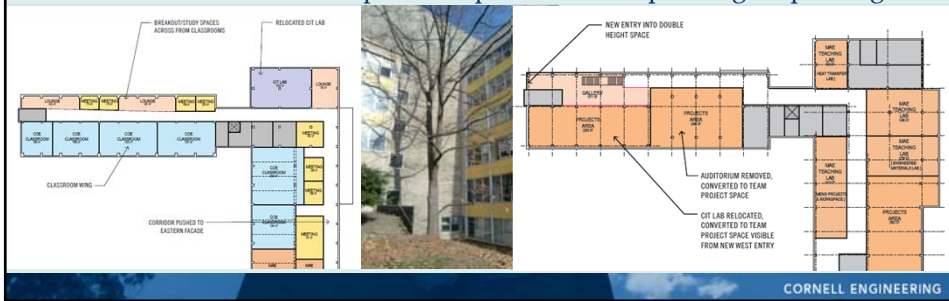
- Kimball renovation
 - For Interim BME; MAE, MSE, ECE
 - Cost – \$14.6M
 - Status & schedule
 - Design done
 - Enabling projects complete Jun ' 14
 - Main renovation complete Jun ' 15



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Facilities

- Full renewal of Upson
 - For MAE, ECE, classrooms, project teams
 - Cost – \$68.4M
 - Status & schedule
 - Finalizing pre-schematic design, initial programming
 - Design complete – Nov '14
 - Construction complete – Sept '16 or '17 depending on phasing



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Facilities

- Curtain wall master plan
 - For image, extend life, energy savings
 - Cost – Part of Upson Project
 - Status and Schedule
 - Reviewing draft report
 - Report complete Apr '14



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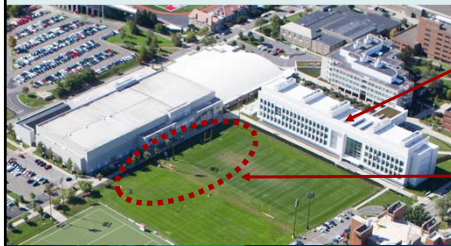
FACILITIES

- BME Building

- For BME Undergraduate Program Growth & Department Home
- Cost ~ \$100M
- Status & schedule

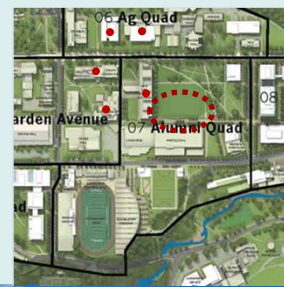
- Presenting Project Plan for site approval
- Requires philanthropy, funds in hand to start
- Need ~Fall '19

Enhances University bio-cluster: Weill, Biotech, Corson-Mudd, Plant Science, translational science



Close proximity to Weill vivarium is essential

High density public spaces on ground floor to activate the new green space



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CORNELL NYCTECH

Cornell NYC Tech Campus: Vision

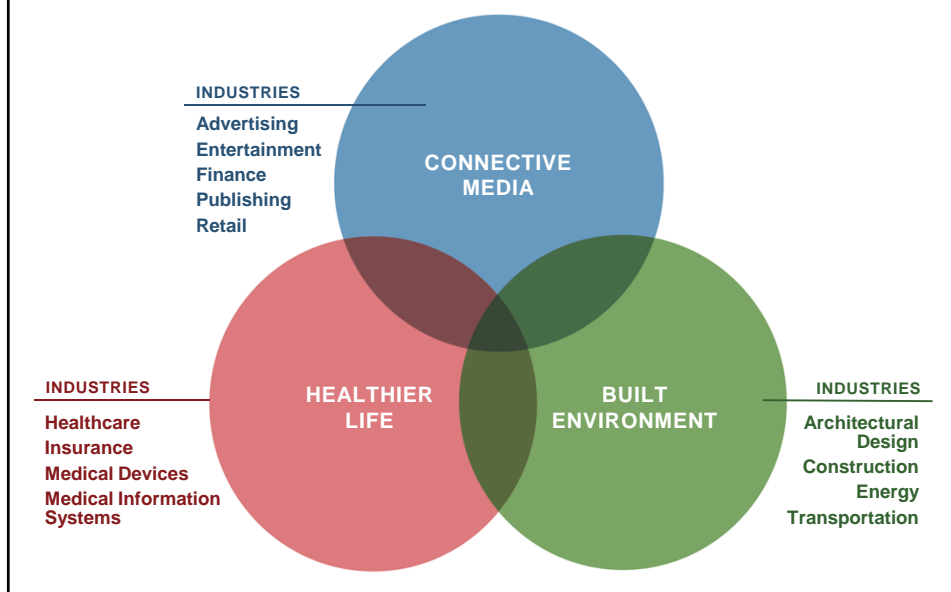
- Attract best and brightest faculty and grad students from global pool
- Create a new tech center for a new century, global and urban
 - Accelerate existing sectors of city's economy: media, finance, medicine, design and other information-intensive industries
 - Drive formation of new technology businesses through close ties to customers, unique domain knowledge, and education of Masters/Ph.D. students
- Serve as focal point of NYC's tech ecosystem



Our Approach

- A new culture of technical depth coupled with active real-world engagement
 - Matrix structure around core disciplines and multi-disciplinary “hubs”, everyday engagement
- A new curriculum combining aspects of engineering, business and design programs
 - On-campus, apprenticeship-style
 - CS/Engineering depth combined with practical skills and exposure to real problems

Hubs Tied to NYC Industry Sectors



Cornell Tech Update

- Currently located in Google Building (8th and 9th avenues, 15th and 16th streets)
- First CS M.Eng. Class (beta class) graduated Dec 2013
- First regular admissions M.Eng. class of 18 admitted this fall
- By this summer we will have 15 faculty on campus
- First cycle of admissions for the MBA program completed; over 600 applications for 40 seats (nearly every student admitted is attending)
- First cycle of admissions for the Cornell/Technion dual degree in Connective Media; 20 students admitted
- Tremendous excitement around the industry projects (a real draw to the campus)

Igniting the Entrepreneurial Spirit in Ithaca

- Creating the campus incubator, eHub
 - 10,000 sq ft of space in Collegetown
 - House eLab and PopShop
 - Collaboration among Student Agencies Foundation; Johnson School; and Engineering
 - Engineers make up roughly 1/3 of the activity thus far
- Governor’s “Hot Spot” in the Southern Tier
 - 750k for 3 years from NYS in Dec 2013
 - Cornell, Binghamton University and Corning creating the “Ceramics Corridor”
 - Connect entrepreneurs to resources to increase deal flow
 - Programming delivered via “Regional Incubators”

Ithaca Downtown Incubator



- Cornell, Ithaca College and TC3
- Not a “Cornell” Facility (open to all)
- Will open this summer
- Member fee (tbd)
- Space is 100% flexible

- Hot Spot funding will provide programming, services and support



STARTUP NY

- Attract job-creating companies to NYS that align with universities by offering tax exemptions
- Accepted companies will receive 10 years of NYS tax benefits
 - No corporate income or franchise tax
 - No state sales tax
 - No personal state income tax on new jobs
 - No property taxes (for already non-exempt land)
- Cornell will serve as one of the sponsoring universities
- Cornell plan approved by the state earlier this month
- Initial conversations with companies have begun
- Goal is to create jobs immediately

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Breaking Rules to Advance Engineering Science

**Brand Guidelines and Logo
Update**

Breaking rules to...

- collaborate across disciplines
- re-think research hypotheses
- push the limits of our imagination
- challenge conventional wisdom
- improve the quality of life on our planet

Brand Overview-New Microsite



CornellEngineering

New College of Engineering Logo

CornellEngineering

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CornellEngineering
Earth and Atmospheric Sciences



11in edge

CornellEngineering
Material Science and Engineering



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CornellEngineering
Operations Research and Information Engineering



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Systems Engineering



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School/Department Web sites-Reskinned using current copy

Cornell Engineering Signature and School/Department



Cornell Engineering
Signature and Design - Round 4
Prepared by Opto Design
March 4, 2014
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School/Department Magazine Designs

Cornell Engineering
Newsletter with Acronyms
Version 1



Cornell Engineering
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March 4, 2014
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School/Department Flyers

Cornell Engineering
Department Sell Sheets

Cornell Engineering
Electrical and Computer Engineering



RESEARCH INTERESTS

After three and a half years as an assistant director in the Research Office and Development for the college, Alexander Meehan will be leaving for an opportunity to lead a new program in the field of Artificial Intelligence.

Subfield One
Research in the emerging field of Artificial Intelligence (AI) is becoming increasingly important as it is being applied to a wide range of problems. The university will benefit from the research and expertise in this emerging field.

Subfield Two
The program will focus on the development of AI applications in the field of robotics. This research will be led by Professor David Borrajo, who is currently a faculty member in the Department of Computer Science at the University of Pennsylvania.

Subfield Three
The program will focus on the development of AI applications in the field of natural language processing. This research will be led by Professor John R. Sussman, who is currently a faculty member in the Department of Computer Science at the University of Pennsylvania.

Subfield Four
The program will focus on the development of AI applications in the field of computer vision. This research will be led by Professor David Borrajo, who is currently a faculty member in the Department of Computer Science at the University of Pennsylvania.

Cornell Engineering
Sibley School of Mechanical and Aerospace Engineering



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Marketing Banners

Cornell Engineering
Cornell Cup Single Banner



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March 4, 2014
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Cornell Engineering Magazine-Re-Design

Cornell Engineering
Magazine Covers
Version 3



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March 11, 2014
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Feedback

The College of Engineering's new branding has just come to my attention—perhaps you already knew about it! Here is a very helpful microsite with messaging, language, and a well-done video to share. Alumni can receive a “brand ambassador” kit.

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Feedback

I am really proud to be part of the Cornell Engineering network. Thank you for creating and sending this (branding) video.

Kathleen Lankford Morgan (alum)

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Feedback

Hi Dawn, It's nice to e-meet you as well! I'm so glad to hear that Tracey has recommended me for this! I'm actually quite familiar with the recent "Break the Rules" branding effort of COE, and I think they're pretty awesome! Thanks,

Andrew Vaslas (current student)

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Feedback

"I watched the "Breaking the Rules" video on YouTube, and it was great! The students and faculty in the video put into words exactly how I feel about engineering and what I think it's meant to be!"

Charlotte McIntosh, Class of 18 prospective student

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Breaking Rules to Make Great Things Happen

siegelvision • clarity above all

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