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College of Engineering Update

March 31, 2011

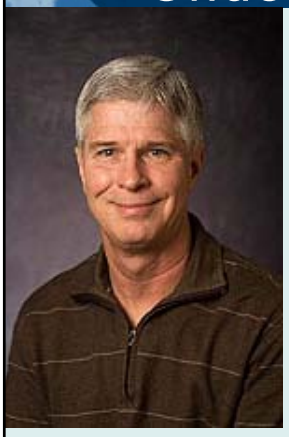
Lance R. Collins

Joseph Silbert Dean of Engineering

Outline

- Leadership changes
- General updates
  - Rankings
  - Student Statistics
  - Faculty Hiring
  - Faculty Awards
  - Budget Update
- Strategic Plan Update
- Classroom Project Update
- Mayor Bloomberg's call for a NYC Campus Proposal

Associate Dean for Undergraduate Programs



Charlie Seyler
Professor, ECE

Degrees received in Plasma Physics:
BA U. South Florida 1970
MA U. South Florida 1972
PhD U. Iowa 1975
Postdoc at Courant Institute
Staff Scientist at Los Alamos National Lab

- Joined Cornell faculty in 1981

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Director, Marketing and Communications

- Dawn McWilliams, Director, Marketing and Communications
- Joined Cornell March 2011
- Degrees received
  - Rochester Institute of Technology BFA '85, MBA '00
- Previously at the Simon Graduate School of Business, University of Rochester
- Focus – branding and increasing awareness through traditional and digital media

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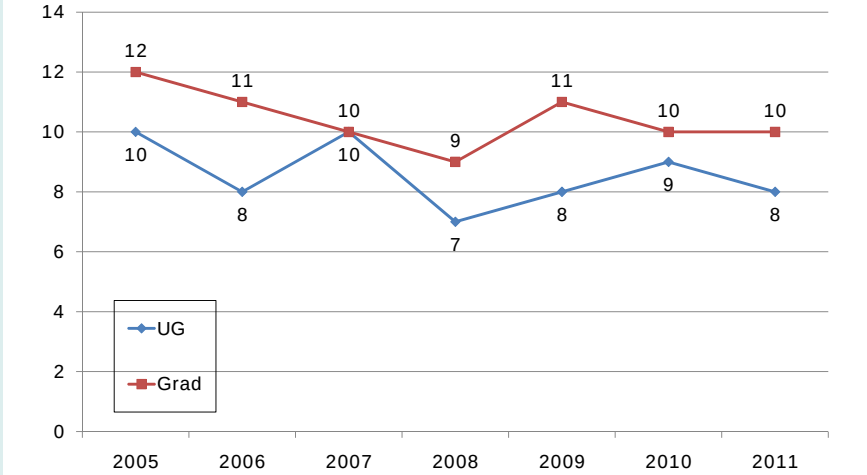
Engineering Undergraduate & Graduate US News Rankings



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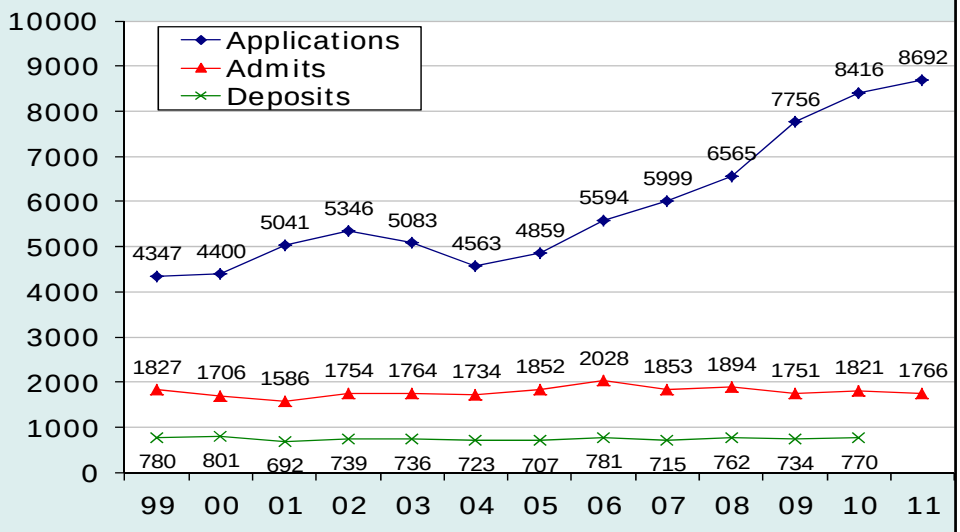
Total UG Applications for Admission



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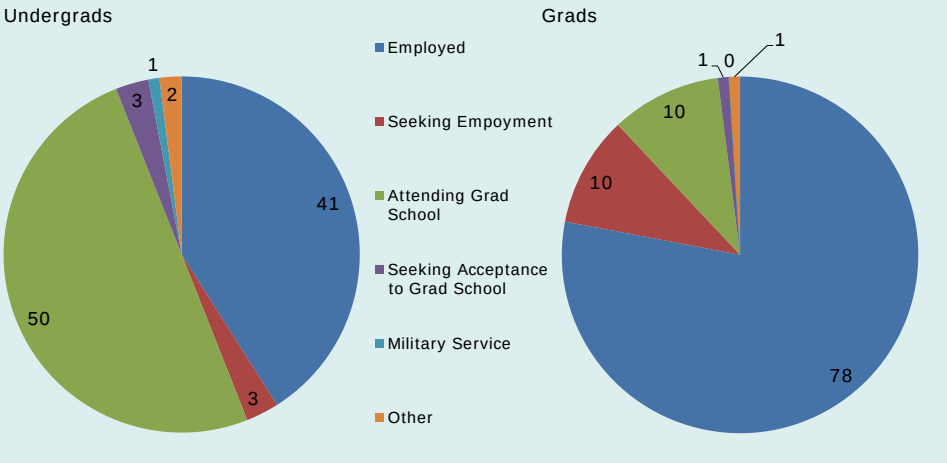
Career placement update



Class of 2010 as of Jan 2011

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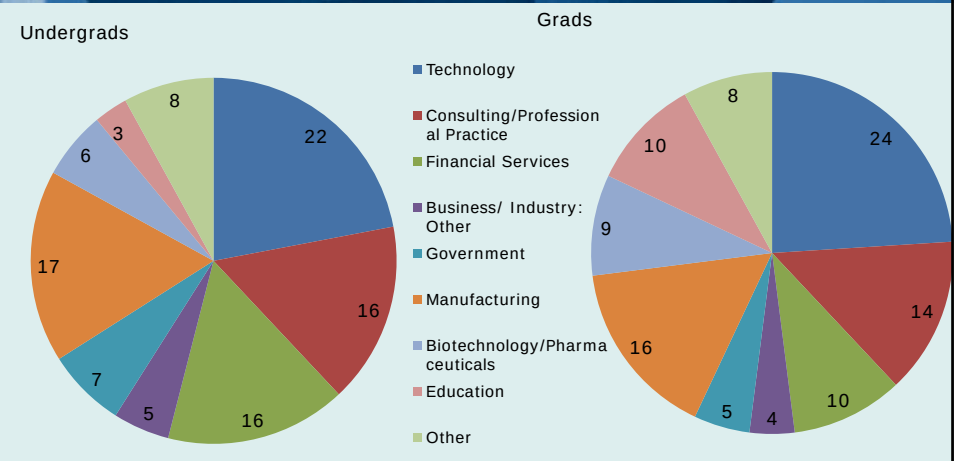
Employment Sectors



Class of 2010 as of Jan 2011

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New Hire and Current Searches

Ricardo Daziano
Assistant Professor, CEE

Faculty Searches Underway

Department	Searches	Status
APE	2	1 accept, 1 offer
BEE	1	1 offer
BME	1 + 1 (?)	1 offer
CBE	0 + 1	
CEE	1 + 1	
CS	3	
EAS	0 + 1	
ECE	3	1 offer
MAE	2	
MSE	1 + 1	1 offer
ORIE	2	1 accept, 1 offer

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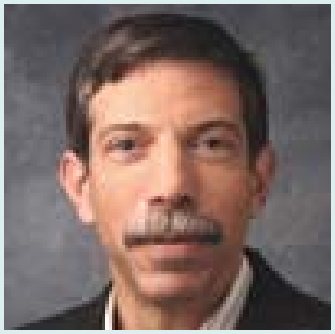
National Academy of Engineering



Fred Schneider
Samuel B. Eckert Professor of Computer Science
Elected NAE 2011

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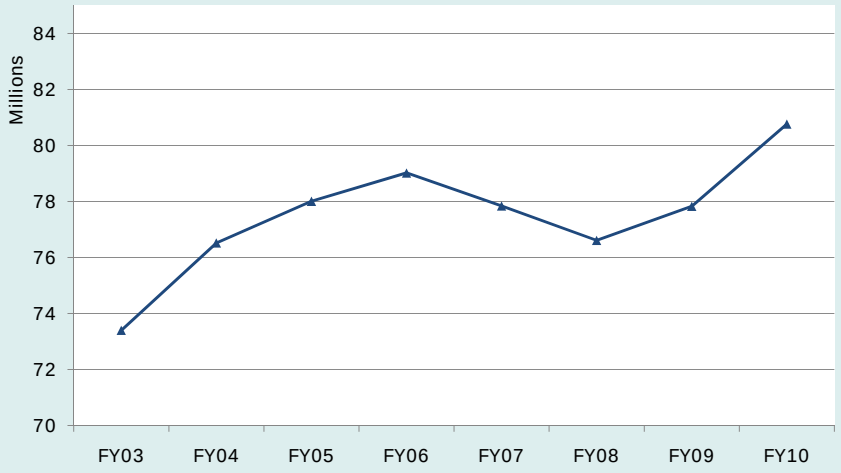
Research Expenditures



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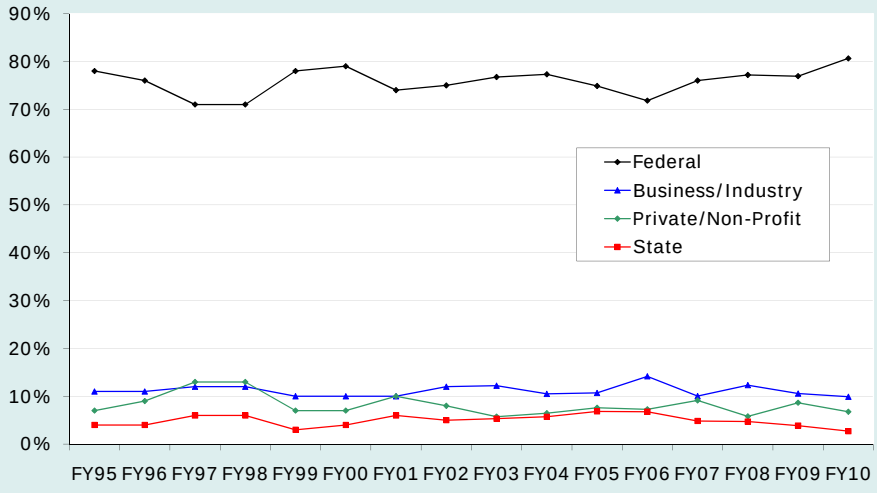
Percent Distribution of Research Expenditures



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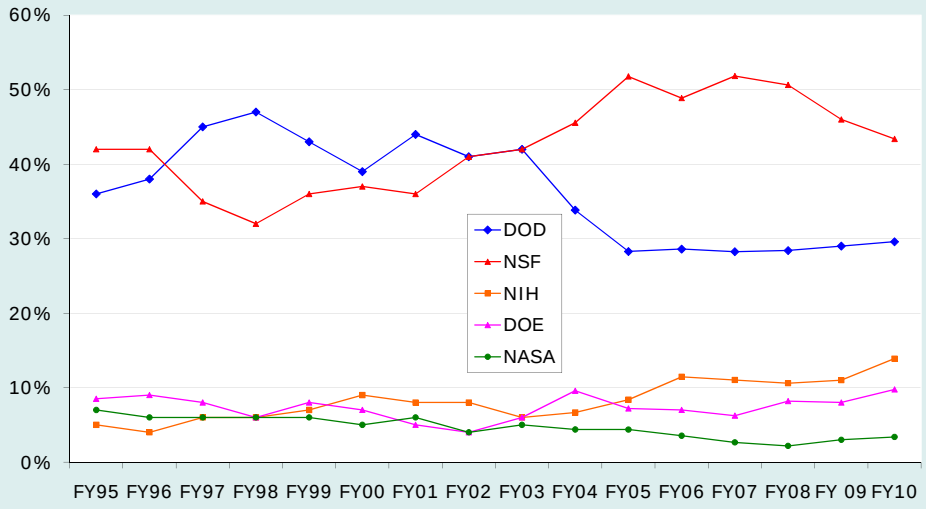
Research Expenditures – Distribution of Federal Funding



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Industry Funding Trends

Cornell: ranking among top 20 Engineering Colleges (latest US News) in terms of % research supported by industrial funding

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Classroom Upgrade Project

- Eng Teaching Excellence Institute led project (Kathy Dimiduk)
- Enhance AV functionality
  - Students: see and hear throughout room
  - Faculty: ease of use, reliability
- Enable faculty to use new teaching strategies
  - Encourage implementation of new approaches
  - Increase creativity and innovation in teaching
- ECC raised $287,700 of $300,000 goal

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Classroom Improvements

- 15 rooms nearly completed impacting ~8,000 student contacts
- Highlights
  - Widescreen projector -split image capability
  - Document cameras
  - Smart Tablets/WACOMS
  - Clicker receivers installed
  - User friendly/smarter controls
  - Dual wireless microphones
  - New larger screens

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Work in Progress

- Design of B14 Hollister
  - New and rearranged screens
  - New projectors
  - Improved controls
  - Smart tablet or document camera
- Medium and small rooms
  - Smart Tablets/WACOM
  - Clicker receivers
  - More black/whiteboards
  - Moveable seating
  - Wireless microphones

Faculty Responses

- Susan Daniel, CBE, Olin 255
  - "Encourages faculty to integrate technology into their teaching to better engage students and enhance learning"
- Mike Thompson, MSE, Kimball B11
  - "This room is perfect for teaching now. I really want to use the side screen and the tablet."
- Peter Doerschuk, ECE, Phillips 101
  - "A document camera has been needed for a long time. With all the new technology, this room will be a faculty recruiting asset now."

Classroom Upgrade Project

Faculty on Olin 255: "It just works now – mics, sound, bright image – boards + screen are really nice"

= Original image size

New screen
New projector
Clicker receiver
Dual wireless mics
Improved sound
Boards + larger screen

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2010 College Plan

College of Engineering Aspiration:

The College of Engineering at Cornell University will be widely recognized as a top-five engineering college in undergraduate and graduate studies

Enabling Goals:

1. To recruit, retain and enable a diverse community of exceptional faculty, students and staff
2. To educate undergraduate and graduate students to become global leaders
3. To be world leaders in important areas of research
   a) to sustain and expand our leadership role in: advanced materials; information, computation, communication and networks; and nanoscience
   b) to be the premier research university in the emerging areas of energy and the environment; and systems biology and biomedical engineering
4. To increase our interactions with industry; and create a fertile environment for entrepreneurial activities for faculty and students

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Department Plans

- Applied & Engineering Physics
- Biological & Environmental Engineering
- Biomedical Engineering
- Civil & Environmental Engineering
- Chemical & Biomolecular Engineering
- Computer Science
- Earth & Atmospheric Sciences
- Electrical & Computer Engineering
- Mechanical & Aerospace Engineering
- Materials Science & Engineering
- Operations Research & Information Engineering

Note departments in red are outside the COE

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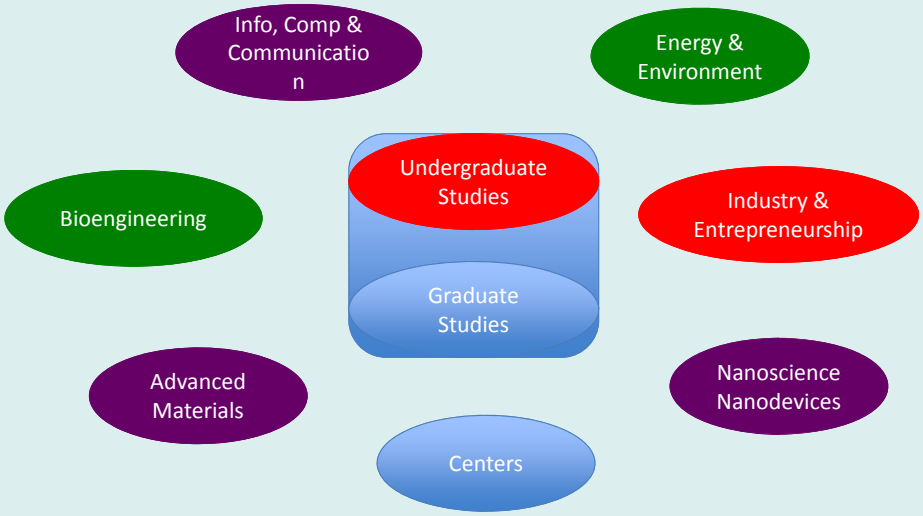
Cross-cutting Committees



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Strategic Planning

- Department and Cross-cutting plans developed
- Retreat 1 (Feb 5): research themes
- Retreat 2 (Mar 18): education themes
- Pushing inter-team planning
- Close to draft plans in all areas
- Process:
  - College draft early summer
  - Final plan(s) end of year

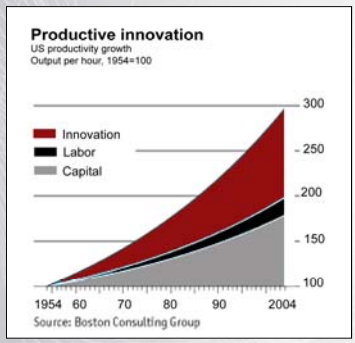
GROWING APPLIED SCIENCES

A Game Changer for NYC

February 9, 2011

In the 21st Century innovation will be key to unlocking economic growth…

Growth in productivity is increasingly driven by innovation…



…and innovation is strongly linked with academic research.

"US employment and income growth over the next decade will depend critically on educational attainment in STEM fields."
- Goldman Sachs Global Markets Institute, June 2010

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These initiatives aside, the 2008 recession prompted us to redouble efforts to find economic 'Game Changers'

Game Changers Exercise

Format:

- a series of **round-tables, workshops, and panels** in 2009-2010.

Participants:

- **325+ CEOs** of large, medium and small companies.
- **25+ community groups** representing a broad spectrum of views.
- **12+ University Deans/Presidents** of NYC universities.

Inputs:

- **Sector analyses** of our leading industries and growth sectors.
- **Benchmarks** with global competitor cities.

Outputs sought:

- A set of initiatives which were **actionable, bold** and which held the potential for **long-term economic impact**.

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From the 'Game Changers' exercise we consistently heard that growing the scale of NYC's applied sciences activity is critical to spurring innovation

- **Building our technology capacity is critical to future economic growth.**
- **Strong research institutions help create knowledge jobs needed for this growth.**
- **NYC is relatively underweight in applied sciences, despite excellent existing institutions.**

A dramatic boost in the scale of applied sciences in NYC…
…**has significant potential to reshape the economy.**

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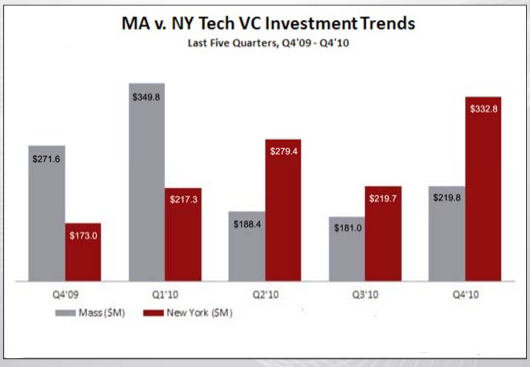
And NYC also has a strong and rapidly expanding financial ecosystem to fund startups and spin-outs

A strong ecosystem for startup investment

- **$1.1 billion** invested by VC firms **in 2010**
- **#2 in VC funding** for internet & tech startups in the US, second only to Silicon Valley.



Source: CB Insights.com, 2010 data

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The RFEI is seeking proposals covering any field of applied sciences research – emphasis is on 'best in class'

SCOPE OF ACTIVITY

Where possible research should:

- be **considered cutting-edge**
- offer a **realistic route to commercialization**
- address **important, real-world problems**
- fosterlinks with **NYC industry clusters** (existing and emerging)
- exploit **interdisciplinary opportunities**

Historic Cornell Strengths

Fields of particular interest:

- engineering
- computer science
- materials science
- nanotechnologies
- environmental science

Respondents are encouraged to:

- set out their vision for a new facility to be based in NYC
- propose research that best fits their needs and capabilities

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The RFEI seeks responses from organizations which make impact locally, nationally, and internationally

PARTNER CHARACTERISTICS

Ideal partners will:

- be internationally **recognized** as **leaders** in applied sciences
- possess impressive **financial** and **administrative resources**
- have **experience** of significant campus **expansions**
- demonstrate the **commitment** necessary **to succeed**
- articulate a **compelling vision**

Collaborations :

- are actively encouraged
- may include industry
- should be formalized but need not be contractual at this stage

Respondents are encouraged to:

- describe how any proposed partnerships would function
- seek partners with complementary skills and resources

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The Four City-Controlled Locations

Governors Island

Goldwater Campus, Roosevelt Island

Farm Colony, Staten Island

Naval Hospital Campus

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Respondents

- Åbo Akadmi University, Finland
- Amity University, India
- Carnegie Mellon University with Steiner Studios
- Cornell University
- Columbia University and the City University of New York
- The Cooper Union
- École Polytechnique Fédérale de Lausanne, Switzerland
- Indian Institute of Technology Bombay, India
- Korea Advanced Institute of Science and Technology, Korea
- New York University, Carnegie Mellon, the City University of New York, the University of Toronto, and IBM
- The New York Genome Center, with Albert Einstein College of Medicine, Columbia University Medical Center, Memorial Sloan Kettering Cancer Center, Mount Sinai School of Medicine, New York University, Rockefeller University, and the Jackson Laboratory
- Purdue University
- Rensselaer Polytechnic Institute
- Stanford University
- The Stevens Institute of Technology
- Technion-Israel Institute of Technology, Israel
- The University of Chicago
- The University of Warwick, United Kingdom

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Preliminary Ideas

- Goal: Create a "tech ecosystem" in NYC; generate lots of start-ups and jobs
- Campus organized around four research themes ("hubs")
- Grad program (MEng and PhD)
- Partners?
  - Universities (domestic vs international)
  - Corporate

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