

## **REPORT FROM THE DEAN OF THE UNIVERSITY FACULTY - 2014-2015**

### **Introduction**

During this, my third year as Dean of the University Faculty, Cornell University has been adjusting with some unease to a new budget model that clarifies expenses and revenues. Elizabeth Garrett's selection in October as the next President, coupled with November's appointment of Harry Katz as Interim Provost, brought home the reality of a swiftly evolving campus. We acknowledge, with sincere thanks, David J. Skorton and W. Kent Fuchs for their accomplishments throughout and following the serious recession that occurred shortly after they took office.

The achievements and dedication of my faculty colleagues, the quality and openness of the central administration, the efforts and loyalty of our incredible staff, and the helpful involvement and wisdom of the Board of Trustees impressed me every day of the year.

The sections below address: faculty accomplishments and honors, Faculty Senate actions and other activities, faculty consultation and governance, and faculty renewal and demographics.

### **Faculty Achievements and Honors**

The Cornell faculty, totaling 1652 in the fall of 2014, is a collection of outstanding individuals who are sometimes "otherwise thinking", often innovative and vigorous in their teaching and scholarship. The Web of Knowledge lists 11,062 publications added to the scholarly literature by Cornell authors in 2014 through early May 2015. This number is undoubtedly incomplete because it misses many online and conference proceedings, which are increasingly common, especially in technical fields such as computer sciences, and because its coverage of many fields in the humanities and the international literature is imperfect. Moreover Cornell scholarly achievements in the fine arts are rarely found in surveys such as these, which also overlook accomplishments that happen in the orchards and farms across New York State. In 2014-5 we taught 5907 courses carrying 453,000 student credit hours; the courses were about five-eighths undergraduate and three-eighths graduate. Following May's ceremonies, 3780 bachelors, 1701 masters, 684 MBA/LLM, 499 PhD, 182 JD and 95 DVM degrees will have been earned in this academic year.

Nine-hundred-thirty Principal Investigators brought in \$777M (+1.4% relative to FY2013) in funded research support during FY2014, of which \$657M (+4.5%) came through externally funded competitive grants; this is about one-third of the Ithaca campus budget. Last year alone, 2299 (+9.5%) new proposals were submitted in an intensely competitive external funding environment that is only expected to tighten as federal research support declines and already-low success rates on proposals fall further. The tightened federal purse was offset by substantial growth in foundation and corporation support. 2267 research awards (-3%) and 743 (-8.9%) sub-awards are active. In FY2014, the Ithaca faculty had 354 disclosures of intellectual property, 158 new licenses and 231 patents granted based on previous disclosures, leading to ~\$11M in gross revenue. Eleven start-up companies opened.

Members of the Cornell academic family garnered many accolades. At the most prestigious level, last summer M.H. (Mike) Abrams (English) accepted the National Humanities Medal and in the spring Jerrold Meinwald (Chemistry and Chemical Biology) received the National Medal of Science. Joseph Y. Halpern (Computer Science), Paul L. McEuen (Physics) and Karl J. Niklas (Plant Biology) entered the American Academy of Arts and Sciences. John Lis (Molecular Biology and Genetics) was elected to the National Academy of Sciences, while Philip Liu (civil and environmental engineering) and Michael Todd (OR&IE) were admitted to the National Academy of Engineering. Three academics were named Simons Foundation Fellows. Four Cornell scholars received NSF Early Career Development awards, and another four got early career grants from other programs, and three were awarded Sloan fellowships. At least four professors were honored with lifetime achievement prizes from their professional societies. Other researchers were named a Packard Foundation Fellow, a Pew Scholar in the Biomedical Sciences and a Howard Hughes Medical Institute Professor.

Even while grumbling about the arbitrariness of academic rankings by the popular press, most American universities seek to improve their current numbers. Cornell is no exception: our strategic plan includes the aspiration to be widely recognized as among the top-ten research universities in the world. That said, many faculty at Cornell and elsewhere –especially at the most highly ranked universities– are skeptical about highlighting specific rankings because they believe that questionable metrics are too heavily weighted and those doing the ranking often have unknown qualifications. Nonetheless, I will now report Cornell’s current reputation as a research university, according to various lists. This year, for example, *US News* improved our ranking one place to 15<sup>th</sup> overall among American universities, with a similar ranking for Best Value, and put us 9<sup>th</sup> among top-ranked universities for economic diversity. We do particularly well in engineering (six programs in the top ten) and natural sciences. Our global ranking, according to international publications, was as good or better. For example, we are 13<sup>th</sup> in the Shanghai University’s *ARWU* (Academic Ranking of World Universities), 19<sup>th</sup> according to the British *QS* world rankings, and 19<sup>th</sup> by the standards of the English *Times Higher Education*, where we score well in citations and research, but less well in industrial support and international contacts. Probably most impressive of all is that forty-nine (more than half of them) of our graduate fields place in the top ten programs nationwide for that discipline, according to *Academic Analytics LLC*, a commercial benchmarking firm funded by most elite universities. In this third compilation, Cornell is by far the best in the US in this category, regaining a position that we held in the first year of this survey. This underscores Cornell’s astonishing combination of research breadth with excellence. The distribution of programs that are either first or second touches six of the colleges in Ithaca. This standing is repeated in international rankings where *QS* ranks Cornell among the world’s elite universities in 33 of 36 ranked subjects. The University has been particularly successful in fostering interdisciplinary research programs and centers. Because these organizations are often unique nationwide, they must be nurtured locally. For the good of the entire university, the central administration must safeguard them under the new budget model.

Three Stephen H. Weiss Presidential Fellows –Cornell’s highest recognition for mentoring, teaching and advising undergraduates– were chosen in early 2015: Nina Bassuk, Horticulture; Marie Caudill, Nutritional Sciences; and Rajit Manohar, Electrical and Computer Engineering were chosen. The extraordinarily beautiful and botanically diverse Cornell campus is the classroom for Professor Bassuk’s two-semester sequence ‘Creating the Urban Eden’; she takes students on weekly ‘plant walks’ to introduce the natural world to them and demonstrates how to become successful environmental stewards. An innovative educator, Nina individualizes the treatment of each student, so as to develop each one’s own learning strategy. Professor Caudill has engaged a wide and expanding audience in her ‘Nutrition and Disease’ course with her “wonderfully crafted” lectures that are “chock-full of relevant, critical information”. A distinguished researcher, Marie often designs specific projects to appeal to particular student interests, leading to their later success in health careers. Professor Manohar teaches courses in computer architecture and organization that bring undergraduates “real-world experiences”. With no textbook available for this cutting-edge material, but calling on his deep knowledge and remarkable energy, Rajit has developed hands-on laboratory exercises and detailed course notes. He has also been active in developing the revolutionary curriculum for Cornell Tech.

#### **Faculty Senate and University-Wide Activities**

In April 2014 the Faculty Senate introduced the new academic title of Professor of the Practice, for non-tenure-track faculty in multi-year renewable positions. This position is intended to enable disciplinary experts with significant real-life experience to teach courses in the practice of a profession rather than fundamentals or advanced scholarly materials. As with the very similar Clinical Professor titles, this title is now available with quite stringent criteria for separate approval by each college. In the current academic year, the Colleges of Human Ecology and of Engineering adopted these titles, while the School of Hotel Administration, the Johnson Graduate School of Management and the Law School allowed their Clinical Professors to call themselves Professors of the Practice instead if they wished.

At the May 2015 Faculty Senate meeting, our Committee on Academic Freedom and Professional Status will present a resolution to introduce another new Cornell title (Research Professor) that virtually all of our peer universities already have. (Assistant, Associate and Full) Research Professors would be non-tenure-track faculty hired on long-term renewable, contracts. The positions are intended for distinguished scholars who devote their efforts to research, without teaching responsibilities, and who will seek outside grants to fund their research. These positions are not to duplicate responsibilities of the usual tenure-track faculty. Like the Professor of the Practice titles, the number of these positions will be a small fraction of the total tenure-track positions. The legislation simultaneously proposes that these new titles replace the current Research Scientist, Principal Research Scientist and Senior Scientist titles, which have been little used and which purportedly harm scholars holding them when they apply for competitive funding.

Each Senate meeting included at least one informational report, ranging across a swath of topics. For example, the Senate learned about the undergraduates' mental health, the status of a faculty/staff working group report on achieving campus-wide carbon neutrality by 2035, the new budget model (twice), Cornell policies for handling sexual assault cases, the engaged learning initiative, and Cornell Tech's progress. In addition, Interim Provost Katz introduced himself to Senators in November and described next year's budget stringencies in March, and the President spoke in March on challenges to higher education, especially those relevant to Cornell.

So as to allow broader participation by underrepresented members of the faculty, the Faculty Senate voted to change its long-standing meeting time of 4:30-6:00 Wednesdays, to a time during usual business hours. The new time will go into effect in Fall 2015.

Associate Dean Michael Fontaine and I will each finish our three-year terms on June 30, 2015. We agreed –and then were approved by the Senate– to serve for an additional year to ease the transition to a new President and Provost.

Faculty Forums, gatherings each semester on an often-controversial topic of significant academic interest, were again held this academic year. September's "International Programs/Partnerships and the Role of Faculty Governance" looked at the benefits and challenges when Cornell enters into agreements with entities abroad. After describing the scope of international commitments and giving examples, the panel asked what policies should be in place before such programs are instituted, and argued that individuals with overseas experience should determine policies and realistic goals. March's "Revenue Enhancement: At What Cost? To What Benefit?" provided background on why and how colleges were increasing their revenue streams and then had three speakers address professional master's programs. Panelists and the audience concluded that such programs are only effective in certain disciplines and that they must be driven by educational priorities. If done improperly, such programs could lessen our reputation even as they bring in funds.

Distance-learning continues to garner some academic interest but nothing approaching the positive and negative hyperbole about MOOCs that occurred in 2011-12 when these new teaching modes were initially introduced. Three of our original four Cornell MOOCs (Spring 2014) are being re-posted this year. They have been joined by four new courses chosen competitively: Ethics of Eating; Reclaiming Broken Places – Introduction to Civic Ecology; Computing Technology Inside Your Smartphone; and Introduction to Global Hospitality Management. Additional central funds are available for innovations in other distance-learning formats, specifically modules.

The just-concluded and hugely successful Charter Day Weekend festivities were organized mostly by faculty panels and were almost exclusively presented by Cornell academics and alumni. The forty-plus events generally had an intellectual thrust but were also fun. They showcased the past and present accomplishments of Cornell graduates and teachers across disparate fields such as finance, performing arts, agriculture, engineering, social sciences and natural sciences. The reviews from all attendees were uniformly

complimentary. Cornell staff volunteers did a remarkable job in making it all function smoothly; the students contributed to Friday's Birthday Bash and the weekend's Fringe Festivals as well as participated in several panels, especially the popular Student Innovators. Some Arts and Sciences faculty publicly boycotted the final formal ceremony to protest the tight budget in their college. Overall, Charter Day Weekend and the accompanying video "Glorious to View" were splendid advertisements for the breadth and diverse accomplishments of an extraordinary institution.

### **Faculty Consultation and Governance**

Interim Provost Katz and President Skorton spoke several times at the Senate (see above). The Provost and, subsequently, the Interim Provost visited the University Faculty Committee (UFC), the executive arm of the University's Faculty Senate, monthly during AY2014-15; the President joined these meetings several times and attended once alone. David Skorton and I also discussed topics privately at least monthly. I additionally attended all of the Senior Staff meetings as well as most meetings of the College Deans. As a result of the President's exhortation, the faculty has broadened its involvement with the Student and University Assemblies. Contact between faculty governance in Ithaca and at Weill Cornell Medical College moved forward somewhat with a campus visit, including attendance at a Senate meeting, by WMCM's Patrick Flynn, and subsequent correspondence.

Senior administrators (from student and academic services, the Graduate School, budget planning, Cornell Tech, contract colleges, and academic affairs) discussed their responsibilities with the Senate in order to broaden the faculty's background about how Cornell functions. These same individuals plus the Vice Provost for Undergraduate Education addressed issues with faculty standing committees, particularly the Financial Policies Committee, the Faculty Committee on Tenure Appointments, the Committee on Academic Freedom and Professional Status, and the Committee on Academic Programs and Policies. A year ago the Distance Learning Committee finished reviewed our policies and opportunities within online education, and this year the Online Learning Development group, a joint faculty/academic staff committee, took over the task of monitoring that report's issues, and instituting policies to govern distance learning.

The interactions between faculty and administration leaders, as mentioned above and as arising in part out of faculty legislation on campus governance and the President's urging, have somewhat enhanced the communication that is crucial to implementing change successfully across campus. However, despite David Skorton's fostering of shared governance, this remains an area where, for the welfare of the entire enterprise, further effort is needed on all sides: the professorate have vast knowledge of the university and are closer to day-to-day academic issues than are most administrators; meanwhile the central leadership is generally aware of broader implications on many issues, and further has responsibility for deciding final policies. Provost Fuchs' departing advice to the UFC was that the faculty, to be effective in promoting their views of what Cornell should be, must become more pro-active on topics rather than reactive; I wholeheartedly agree. But to be pro-active requires advance knowledge about forthcoming issues, and that will

necessitate advance disclosure on the part of the central administration while choices are still be discussed, and that requires mutual trust. Progress along these lines seems to have been made in some areas, by give-and-take meetings with the Educational Policy Committee and the Financial Policies Committee, the Provost's appointment of faculty representatives to several planning groups and the recent access that faculty have been given to knowing relative salary levels.

Provost Fuchs introduced a new budget model more than a year ago, with the goal of making revenue sources and expenses more explicit and transparent. This has made some faculty anxious that ongoing subsidies, now exposed but previously confidential, may become vulnerable and that, with a clearer statement of what is valued, the model can be "gamed", encouraging bad behavior. Various safeguards have been put in place but only time will tell as to the effectiveness of such oversight. President-elect Garrett, who has operated under such a budget process at USC, has asked for patience.

Budget stringencies, a new health fee charged to students and the roll-out of Engaged Cornell upset some faculty, especially in Arts and Sciences. This led to the passage in April by the Senate of a resolution that pointed to various historical "educational-policy" decisions that it alleged were improperly handled. The motion called on the administration to abide by previous Senate resolutions that proposed mechanisms to strengthen shared governance. Some professors sense tension between the traditional 20<sup>th</sup>-century university that trained them and allegedly drastically changed models, as epitomized for them by Cornell Tech and a growing central bureaucracy. The administration counters that it has usually sought agreement, specifically on the controversies above. However, both faculty and students believe that their constituencies are usually called to rubber-stamp completed decisions: their involvement would be more effective if their constituencies were consulted sooner in the process when meaningful redirections to policies and decisions could be implemented. At May's meeting the Senate will consider initiating an investigation of the CUPD treatment of student protesters allegedly involved in an incident before the March Trustee meeting. More activity and confrontation is happening nationwide among student bodies, and is generally to be welcomed. But some faculty want transparent guidelines to be laid out and enforced uniformly.

The Executive Committee of the Board of Trustees continued its practice of meeting semi-annually with the UFC. I thank the trustee leaders for soliciting faculty opinions in a respectful, meaningful way. March's meeting was particularly useful, with an extended conversation about financial aid policies. Likely this discussion will lead to a Faculty Forum on the topic in fall 2015, and may involve Trustee contributions. The goal would be both to understand the nature and motivation of the university's financial aid allotments, and whether they are achieving stated goals.

Four professors (two faculty trustees, the faculty dean and Jonathan Culler) participated actively in the Presidential Search from March through September. Faculty members form more than half of the Provost Search Committee; all of us await their selection.

### **Faculty Demographics and Renewal**

This year faculty numbers surpassed their previous peak in 2007 to reach an all-time high. The relative faculty growth (1647 to 1652, +0.3%) in these seven years is much less, however, than the expansion of the overall student body (19,800 to 21,593, +9.1%); among sectors, professional master's degrees increased proportionally the most (from 2114 to 2807, +33.4%). The resulting growth in student-faculty ratios presumably hurt our academic rankings. The colleges with the largest proportional gains between 2007 and 2014 were CHE and ILR, while AAP and CALS lost the most, but these are simply one year's values within complex, evolving statistics.

Hiring patterns are changing. Assistant Professors –increasingly after holding several postdocs or instructorships– are joining at an older age than previously. Meanwhile, universities –ours included– are selectively raiding the staff of competitors. This goes both ways and recently we have lost some of prized mid-career faculty to other institutions. Contemporaneously we have attracted more Associate Professors and mid-career Full Professors from competitors than years past. We are particularly vulnerable in those times when Cornell is undergoing budget cuts, or faculty has become demoralized. The administration may need to be more aggressive on hiring despite today's tenuous financial times. This is especially difficult in the sciences and technical fields where lucrative start-up costs, requiring significant funds, are the norm.

Like our research competitors, Cornell is –very appropriately– preoccupied today with faculty renewal. To replenish today's corps of 1652 in thirty-three years would require fifty hires annually. But this underestimates today's needed hiring because –like all of American higher education– many of our faculty began in the 1970s. Hires from decades ago skew current faculty demographics toward older full professors, where 22% now are > 65 years old; this had been just 9% in 2002, when this fraction was already deemed problematic relative to our peers. Fractions of faculty under the age of 35 have dropped a bit in the last 15 years, while Assistant Professors are level, indicating that the rate at which people are arriving as assistant professors is similar to its earlier rate. Curiously, only the number of Associate Professors has changed appreciably, expanding 20%. The demographic cohort that is changing most at Cornell lies between 45 and 54; it has fallen from ~35% at the start of the millennium to now being just 21%. We should learn whether this mirrors sluggish hiring twenty years ago or owes to the leakage of faculty to other institutions. Because professors are staying longer, fewer slots are available for younger scholars who often bring new specialties and perspectives, thus invigorating campus life.

In 2011-2014, Cornell hired 78 professors per year (on average) while it lost 63 per year. These rates are surprisingly similar to those during a pre-recession period (2002-2008) when we annually gained 78 new professors while losing 68 per year. The advent of the global budget crisis in 2007, exacerbated by the simultaneous realization of our own structural budget deficit, had put Cornell under considerable financial stress, leading six years ago to stagnated faculty hiring, just as the rate should have been expanding. Following the recession, Cornell had a net loss of fifty-six professors (2008-2010).

President Skorton has urged more post-tenure review but has found faculty to be generally unreceptive. I personally think that, if done in a supportive, non-threatening manner, occasional reviews between department chairs and typical tenured professors could benefit many professors. Constructive criticism should always be welcome in an academic enterprise. I find personnel review similar to the critical reports that scholars receive when submitting papers for publication. In order to assist older faculty as they move through the final career stage, colleges may wish to enhance their retirement advising and to introduce more end-of-career options.

The central administration, with strong trustee support, is striving to finance the regeneration of the faculty. Meanwhile colleges are determining the new research thrusts that should be instituted, implying that some areas of earlier scholarly expertise should be correspondingly reduced. Many departments are consumed by these activities: the sequential processes of choosing departmental priorities, and then selecting and interviewing candidates have absorbed major fractions of the spring semesters. The faculty renewal program, which the Trustees initiated and which is funded partly by alumni donations, has allowed departments to pre-fill some faculty positions to take advantage of the availability of exceptional candidates. This smart planning has eased problems somewhat.

Ideally we can use current hiring opportunities to improve diversity campus-wide. Professional dual-career couples continue to be challenging to hire in a small upstate NY community. However, Cornell's excellent family-friendly policies (e.g., parental leave, child/elder care assistance) are assisting us retain early to mid-career faculty and staff.

### **Concluding Remarks**

To a great extent, Cornell's faculty –past and present– provide the basis of the university's enviable reputation worldwide. We faculty are employed to create new knowledge and to elucidate topics that fascinate us. We have the privilege to investigate questions that we find intellectually challenging. We are honored to interact with very bright, enthusiastic, inquisitive and questioning young minds – in and out of the classroom. Our members speak with one voice in desiring that Cornell remain a unique, top-level institution that is diverse in its mission and in its makeup. Accordingly we strive to contribute to that excellence. I have been extremely fortunate to represent and to interact with these outstanding individuals. We faculty acknowledge and sincerely appreciate the substantial contributions of the Board of Trustees in guiding, supporting and strengthening our beloved institution. We look forward to engaging with the incoming President and Provost to continue to improve Cornell's impact on the world.

Joseph A. Burns  
Dean of the University Faculty  
May 8, 2015



# Report from the Dean of the University Faculty, Joe Burns







# OUTLINE

1. Accomplishments
2. Honors
3. Topics



# Some Accomplishments

**Teaching:** 5900 courses, 453,000 student credit hours

**Degrees:** 3780 Bachelors, 1701 Masters, 499 PhDs,

684 MBAs + LLMS, 277 DVMs + JDs

**Scholarly Publications:** 11,062 papers + many other contributions

**Research Funding:** \$777M, 2299 props sent, 930 active PIs

**Intellectual Property:** 354 disclosures, 231 patents,  
158 new licenses, 11 start-ups, \$11M in license income

# A Few Honors

## Academy of Arts and Sciences

- **Joseph Y. Halpern, Computer Science**
- **Paul L. McEuen, Physics**
- **Karl J. Niklas, Plant Biology**

## National Academies of Science and of Engineering

- **John Lis, Molecular Biology and Genetics**
- **Philip Liu, Civil and Environmental Engineering**
- **Michael Todd, Operations Research & Information Engineering**

**Chemistry Nobel Prizes:** Eric Betzig, '88 PhD; W. E. Moerner, '82 PhD

## Additional Honors:

**4 NSF & 4 Other Early Career Fellows, 3 Sloans, 3 Simmons**

**Pew & Packard Foundation Fellows and Howard Hughes MI Professor**

**Scores of faculty presenters at 150<sup>th</sup> Charter Day celebration!**





## National Humanities Medal

M.H. Abrams, 7/28/14

## National Science Medal

Jerrold Meinwald, 11/20/14



# Congratulations to our Stephen Weiss Fellows

**Nina Bassuk**  
**Horticulture**



**Marie A. Caudill**  
**Nutritional Sciences**

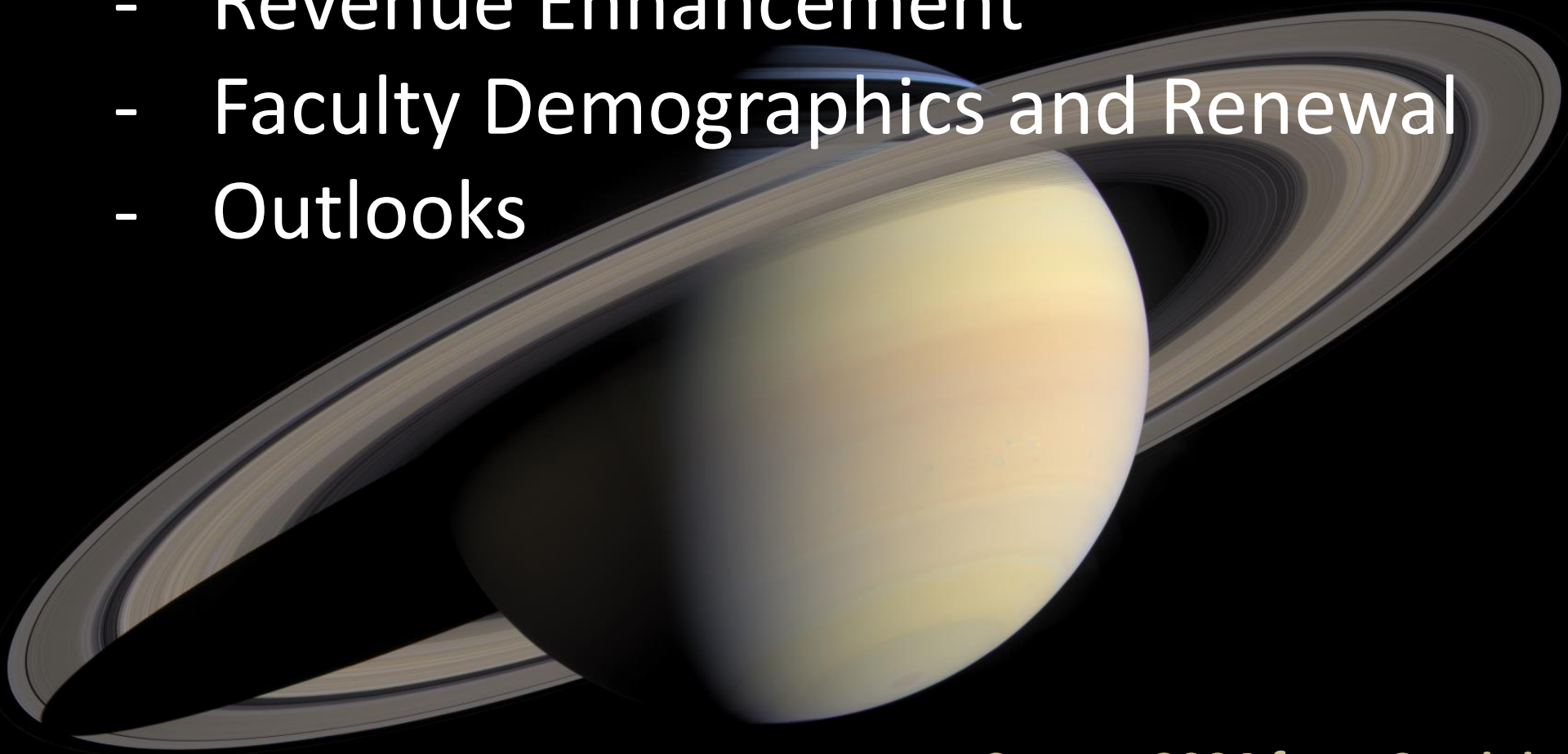


**Rajit Manohar**  
**Electrical & Computer  
Engineering**



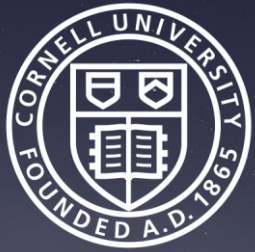
# TOPICS

- New Faculty Titles
- Revenue Enhancement
- Faculty Demographics and Renewal
- Outlooks



**Saturn, 2004 from Cassini**





The faculty thank David, Kent, Harry,  
Susan, Charlie and the Trustees!