

To the members of the Faculty Senate:

I have been shown a copy of the CAPP report and am sad to say that in the areas familiar to me, it is simply not reflective of the facts.

In particular, the report suggests that the creation of the CIS unit has hurt the CS department (this would seem to be the implication of the "concerns" raised in the section quoting acting Dean Craighead), has been harmful to Engineering (the apparent overall point of the report) and that the "eccentric status of CS causes problems" for many departments in the college. Presumably, the department most implicated in this sense is ECE, and of course as Chairman of CAPP, Terry Fine (an ECE department member) is primarily familiar with the views of that department.

Nonetheless, I feel that no department has experienced substantive problems in conjunction with the FCI, and in particular, I feel that the ECE/CS relationship has improved tremendously since the CIS unit was created. In support of this view, I want to offer a brief summary of the situation in my own area: Computer Systems. More specifically, I'm a researcher in computer networks and systems. In CS there are perhaps 6 or 8 of us in the overall area. Another 6 researchers from ECE are members of the CS graduate field and 4 of these are in my area.

Prior to creation of the CIS unit, relations between ECE and CS were at a low ebb, and this extended to the systems group. Monthly joint luncheons had been ended after several years of lunch-time dialog. The departments were at odds over recruiting, TA allocations within the College, advising loads, vision for the College of Engineering, Duffield Hall, and many other issues. CS and ECE had conflicting goals and overlapping hiring objectives in the systems area.

Today, the ECE and CS systems groups enjoy a closer relationship than at any time since I first joined the CS department 20 years ago. We have a broad dialog, many joint projects and funding proposals, co-teach courses, attend one-another's seminars and have lunch together almost weekly. CS has been active in helping ECE recruit, and the two departments have clarified visions which no longer overlap; on the contrary, they are mutually complementary in a constructive and positive manner.

Infusion of CIS resources has helped calm the advising and TA load issues that were at a head two years ago. Indeed, I'm convinced that the creation of the CIS unit has been the dominant force in calming the tensions that had previously inhibited dialog and cooperation. Meanwhile, CS continues to play the same teaching and advising role it played within Engineering before the Department was moved into CIS. Cornell has just hired a truly outstanding individual, Kent Fuchs, to head Engineering as its new Dean. This is simply not a pattern of "damage".

Let me amplify on some of these points:

- CS and ECE co-teach CS314/ECE314, which alternates between a "CS-taught" semester and an "ECE-taught" semester (the curriculum doesn't change). Sometimes a CS and ECE person work together to teach the course jointly in the same semester. We hire ECE TA's for this and other CS courses and ECE hires CS TA's in a like manner. Indeed, ECE TA's have worked for CS in many courses over many years. Prior to creation of the CIS unit, CS and ECE had competing but similar courses in this area, taught independently.

- ECE students commonly take CS courses at all levels and make up as much as 50% of some of our upper-level courses. CS students often take ECE as a minor and while I don't know the statistics, I am confident that we are equally well represented in many of the upper-level ECE course offerings. Prior to the unification of the 314 course this was less common because the students in each program lacked basic prerequisites for courses in the other.

- We run a joint weekly research seminar series, on Friday, meeting in the CS systems lab, which houses some experiments that are joint with the ECE folks in the area. Lunch is provided and we cover a paper each week. Some topics are picked to stress ECE areas of interest, some stress CS topics. A great number of faculty and students are thus exposed to both ECE and CS interests in a single weekly setting.

- We are active on the ECE faculty recruiting committee and have attended talks by their candidates, met with candidates one-on-one, etc. They reciprocate: Ravi Ramamcorthi, a recent visitor who is a candidate for a faculty position in graphics, visited with Rajit Manohar during his interview here and was introduced to several other ECE systems faculty. Ravi later commented that his lunch with Rajit, who he knew as an undergraduate at CalTech, was a very positive and interesting one.

- ECE faculty members help make up and grade the systems graduate qualifying ("Q") exam in CS, providing 20% to 25% of the exam material in this exam, which is required for CS PhD students. Indeed, some six ECE members have become CS graduate field members. Prior to the formation of CIS, I believe that only two or three had this status.

- We jointly supervise students who work in the areas of wireless and mobile computing. For example, Zygmunt Haas and I meet at least once or twice each semester for a graduate A or B exam lately! Toby Berger and I are also on many student committees together. Indeed our joint advising extends beyond the graduate program: this past summer, we were approached to help the Swiss EPFL in Lausanne plan a form for merging their communications and CS departments and hire a new dean. Toby and I attended a one-week meeting on this topic in Lausanne last July and another meeting is planned for this coming summer. EPFL specifically requested that I give a talk on the CIS concept during this meeting; one might surmise that the Swiss admire and hope to imitate our innovation in this area.

- I have held several joint grants with the PSERC consortium in ECE (headed by Jim Thorpe and Bob Thomas) and, most recently, we are looking at teaming up to form a bi-

coastal institute for critical infrastructure protection research. At Cornell, Wicker and Schneider (ECE and CS respectively) would lead the effort. At Berkeley, Shankar Sastry would lead the West Coast counterpart. The level of potential funding is immense. But this simply builds on existing successful funding collaborations -- plural, and not just involving me. Several of my colleagues have similar collaborations.

These collaborations are quite meaningful. Jim Thorpe and I discuss research fairly regularly, and have traveled together to Washington at least 4 times in the past two years. Bob Thomas organized some of these trips. In other settings, Bob has covered for me when I was unable to attend and given a talk on my behalf -- he knows my work well enough to do this in a high level manner. In others I've covered for him and Jim. Jim and I also jointly supervise one CS PhD student, Ken Hopkinson, who splits his interests between CS and ECE -- one of my five current PhD students.

The above is of course focused on just my own research and my own relationship with ECE. Within the CS department as a whole, I'm certain that at least five or six of us could tell similar stories. More broadly, looking at CS dialog with Engineering as a whole, I suspect that as many as half of us have some form of direct dialog or joint research interest with someone else in Engineering, sometimes in ECE, sometimes in ORIE, sometimes in MAE, etc.

Obviously, not all of the above are direct consequences of the formation of CIS. Yet broadly, I credit CIS for creating the atmosphere within which much of this dialog has become possible. Far more of these things have happened since CIS was formed than previously.

Is it reasonable for CAPP to characterize this as an atmosphere in which CIS and CS are causing "problems" elsewhere in Engineering?

Now, I've focused on the ECE / CS dialog, but elsewhere in the College, CIS resources are permitting us to hire people like Hod Lipson in MAE, who plans to establish close ties to CS faculty members in the AI area. CIS is in discussion with ORIE to assist in filling an opening in data mining within that Department. CIS has seeded new programs in Computational Biology (clearly an emerging Engineering discipline), and in Information Science (likely to be very popular with Engineering undergraduates). And as a member of the CIS Founding committee, I can say that CIS would welcome proposals from interdisciplinary groups within Engineering, just as we welcome such proposals from other parts of Cornell.

As I look again at the CS/ECE interface, it seems to me that while prior to the formation of CIS the two entities were at odds, today, very few sibling departments in the University as a whole could point to stronger or more vibrant ties. Yes, there are sometimes areas of friction, but I think that on the whole, these are rather minor.

The CAPP report quotes Dean Craighead in a manner as to suggest that the CS department has suffered a loss of quality and stature since the CIS unit was founded. Yet

I believe that the opposite is true. CS itself has gone from a serious retention problem (six faculty departures immediately prior to formation of the CIS unit, with many citing friction within Engineering as their reason for departure) to a very positive growth, with the highest quality of incoming faculty members in my memory. Two years ago, CS graduate admissions had the remarkable experience of seeing 50% of our admitted PhD students select Cornell over peer institutions such as Stanford, MIT, Berkeley and CMU. This year we may be poised for a repeat success.

We all know that rankings are suspect (especially rankings conducted by popular magazines). Nonetheless, it is worthy of note that CS at Cornell is nationally ranked among the top five departments, both by US News and World Report and by a more scientific ranking, conducted by the National Academy of Sciences. Moreover, since the CIS unit was founded, it seems to me that the ranking of Engineering and of the ECE systems group has actually risen. None of this is consistent with the CAPP report.

I could go on, but hopefully, the point is clear. This is simply not the pattern of a department (or a CIS unit) taking actions damaging to the ECE department or to the College of Engineering as a whole. With the help of CIS, much past friction has been eliminated and the two departments are working constructively for the good of Cornell, for their own good, and certainly for the good of the College as well.

Before closing this note, I do want to comment that I am particularly troubled by the last paragraphs of the CAPP report. Here, among other points, one finds the comment that the FCI membership "has not grown" subsequent to the founding of the unit, and also an admonition that the Senate investigate CIS tenure and hiring practices.

These and other remarks in that section surprise me, because Terry Fine, Chairman of CAPP, has participated in precisely those FCI actions related to faculty appointments. Terry already knows a great deal about these matters, yet the CAPP report omits relevant information and seems to hint at nefarious doings.

For example, on the question of "membership", the CAPP report is poorly informed. The FCI unit has no formal notion of membership – there are no FCI "members". We do have the founding committee, on which Fine serves – whose membership was carefully determined by the University leadership, in negotiation with many units including the Senate, and is not open to casual expansion.

CIS has assisted in hiring quite a number of very impressive faculty members over the past year, so membership in the sense of CIS-funded faculty is clearly growing. Indeed, I can think of no meaningful notion of membership that has not shown growth. If CAPP wishes to recommend that the CIS unit institute some other form of membership or affiliation, we would welcome their ideas. Quite possibly, a graduate field will soon be needed for CIS affiliated faculty; it is not clear that CS field membership is a suitable long-term option (although this is the near-term solution we've used in several cases during the past year). At any rate membership, at least up to the present, has not been a primary concern of the committee.

On the contrary, the committee has focused on defining the kinds of multidisciplinary programs into which CIS resources should be directed. By and large, these are undergraduate educational programs that cross domain boundaries in innovative ways to create opportunities for Cornell students which would not otherwise be available. Examples include our new program in Computational Biology and Genomics, and our program in Information Science. Others are being developed in areas such as Digital Arts and Graphics, e-Business and Commerce, and Computational Science and Engineering. CIS is helping to structure such programs, to recruit faculty members into them, and to fund the necessary course development. They are characterized by an emphasis on undergraduate education, by their cross-disciplinary nature, and by the importance of the opportunities they represent. These programs are offering Cornell a way to achieve immediate visibility in some of the most exciting emerging disciplines without disrupting its traditional unit and departmental structures. I view them as great successes.

This raises the second matter on which CAPP is implicitly critical. In part at Terry Fine's urging, and with his participation, and ultimately with his supporting vote, FCI has developed a written policy on appointments governing the precise rules under which FCI resources can be expended and spelling out the policies for FCI involvement in tenure and other review activities. FCI has adopted the College of Engineering tenure and teaching policies. All of this occurred with Professor Fine's active participation. Again, it seems that CAPP has failed to inform itself of policies and information readily available.

In the case of the CS department itself, tenure is being evaluated under the same policy as was used previously, when CS was a part of the College of Engineering. Ad-hoc committees are formed by the Dean for CIS through dialog with the Deans of Arts and Engineering, and have membership drawn from outside CS and from both colleges. The process is one that demands the highest standards for scholarly and instructional accomplishments. It is as difficult to gain tenure at Cornell in CS today as it would be at MIT or Stanford.

I should perhaps comment that the CIS policy on appointments responds to one of the charges put to the Founding committee in the original Garza report. Pursuant to that report, we are now waiting for review and comments by the various units with which CIS has been in dialog. All of this is entirely above board, subject to normal academic control and review, and all of this is well known to Professor Fine, who has attended CIS Founder's Committee meetings. He has taken on responsibilities for the FCI and offered constructive input.

The Senate should be critical of subcommittees such as CAPP which place biased and narrowly researched material before the body as a whole. While a broadly written consensus report would have some value, the Senate should reject the current report and may wish to reconsider the nature of the charge to the CAPP subcommittee. This is a poorly researched report, replete with hints of intrigue and innuendo, but short on facts and inaccurate in significant ways. CAPP's report serves all of us poorly.



With respect to the CIS unit as a whole, I believe that if the Senate were to look closely at what has been accomplished, the body could only applaud the effort. Details of the placement of CS within one part of Cornell or another may seem to be a matter of great importance to a few individuals, but I think it is actually a minor issue in the larger picture. The significant point, and the one I hope the Senate would note with approval, is that CIS is helping Cornell step onto the world stage as a leading institution where Information Sciences and Computation can play a significant role in every part of the University, rather than been concentrated in the CS department. Through the CIS unit, Cornell's CS Department has emerged as a leader in building interdisciplinary programs and bridges. Some of our highest profile hiring successes of the past two years have been concentrated in CIS.

In a very short period of time, CIS has had a dramatic and positive impact on Cornell, on CS and indeed, on the College of Engineering and ECE. Given more time, CIS can help lead Cornell to historic heights and help transform the University into the kind of institution able to demonstrate international leadership as we jointly confront the challenges of a decade within which the role of computation in science and the arts will surely continue to surge.

I urge the Senate to set the CAPP report to the side and to join the CIS unit in tackling this important and exciting challenges.

Ken Birman