

SAB Meeting Minutes

Department of Computer Science
North Carolina State University
Minutes of Meeting
April 28, 2006

The Department of Computer Science Strategic Advisory Board met at Engineering Building II (EBII) on Centennial Campus on Friday, April 28, 2006.

Members in Attendance: Nicholas Bowen, Wayne Clark, Keith Collins, Jesse Fearrington, Chester Fennell, Jo Goodson, Satish Gupta, Vivien Joklik, Gopal Kakivaya, Steve Kuekes, Kathy Markham, Bill Riddick, Kristopher Tyra, Bill Weiss and Steve Worth.

Member Regrets: Rowland Archer, Chris Crump, Chris Evans, Dennis Flynn, Ken Hibbard, Gayle Lanier, Gerhard Pilcher, Rudy Puryear and Juan Vargas.

Presenters & NCSU Representatives in Attendance: Ken Tate, Dr. Mladen Vouk, Dr. Dennis Bahler, Dr. David Thuente, Dr. Harry Perros, Steve Allen.

Opening Comments – Ken Tate introduced new board members Chet Fennell and Jessie Fearrington. Their biographies are on the SAB web site: <http://www.csc.ncsu.edu/directories/sab/>. Ken presented an overview of giving to the department:

- ePartners—\$300K total, \$157K of that is unrestricted.
- Department—\$7M total, ~\$6M comes from annual OPNET Technology software gift.
- Achieve Campaign—University well on its way to \$1B goal. CoE well on its way to its \$250M goal, with several large gifts recently (such as the Fitts gift naming the IE department). Department is progressing well with several new endowments. More endowments are needed at the department level. Diversity in Computer Science Endowment (sponsored by several SAB members) has pledges of ~\$77K total, and \$28K collected. First proceeds in available July 2006.

Ken announced that Dr. Vouk has been appointed Department Head for Computer Science.

(Note: Slide handouts for all talks were provided in the notebook. Only points not provided in the notebook are listed here.)

Department Review – Dr. Malden Vouk presented a “state-of-the-department” review, highlighting the department’s strengths and successes, current challenges, and plans for moving forward in the future. In particular, the following items were discussed, in addition to what was on the slides:

- Department personnel numbers are currently 26 staff, 42 faculty, and 25 other faculty associated with the department. Three faculty must be on sabbatical each year in order to stay within the personnel budget.
- The department will begin its 40th Year celebration and campaign soon ('67-'07).
- Dr. Bitzer was recently inducted into the Consumer Electronics Association Hall of Fame.
- **Cisco Systems** has selected NC State as one of just five universities nationally to participate in their **National Cisco Internet Generation Scholarship (NCIGS)** program. Through the NCIGS program, Cisco plans to award two annual scholarships to underrepresented NC State CSC undergraduates (minorities and/or females). Each scholarship is valued at \$5,000/year and is renewable as long as the student maintains enrollment in computer science and maintains a minimum 3.0 GPA. Other schools selected to participate in the NCIGS program include University of California at Berkeley, University of Texas at Austin, University of Michigan, and Georgia Tech.
- NCSU was recently ranked 2nd “Best Value” in education by *The Princeton Review*.

- Dr. Vouk is emphasizing three department concentrations: security, communications and services.
- Curriculum updates
 - CSC 116 (Java) and CSC 216 meet basic and advanced programming requirements.
 - CSC 230, offered in the sophomore year, provides a C course option.
 - ECE is no longer a part of CSC 116. ECE has their own introductory C programming course.
 - Dr. Tharp will teach a new course on innovation in the fall, CSC 485.
 - Dr. Perros is leading an initiative to develop a Services Sciences curriculum option in conjunction with the College of Management.
 - The department is evaluating various funding models to help cover the costs of the different capstone courses and considering establishing a director for capstone courses to ensure efficiencies.
 - The department is considering re-establishing the certification program—potentially a \$100K–200K revenue generator.
 - The department is considering establishing a certification program in distance education and requests SAB input.
- Only half of the faculty is bringing in creditable funding. The current model is 60 percent state/40 percent external funding—should be 40/60. There is hope of doubling such funding in the near future.
- The current trend is to create centers to help draw in external funding. Dr. Vouk prefers to use an active support model to develop centers. The effort required for success is intense and requires desire and commitment from the faculty member pushing the work. A successful center needs a \$500K annual funding commitment.
- Release-time for faculty will be more merit-based in the future.

Undergraduate Program Review – Dr. Dennis Bahler, director of undergraduate programs for the department, announced that the department has ABET accreditation for another 6 years. In an article published recently by *Forbes* magazine, NCSU was recognized by *The Princeton Review* as one of the “25 Most Connected Campuses”. This recognition is based not only on the breadth and use of both streaming media and wireless/handheld computation on campus, but in part on the strength of the overall CSC curriculum. E115 is now based on student-owned computing resources.

CSC 116 is an 83 percent service load to the department; only 13 percent of the students are Computer Science students. The drop rate from this course has improved to 40 percent. NCSU Computer Science female enrollment is 11 percent, compared to the 16 percent national average.

Graduate Program Review – Dr. David Thuente, director of graduate programs for the department, said that M.S. students in the non-thesis programs have difficulty getting a faculty advisor; those students have little to offer the faculty member. Half of the current Ph.D. students are international students. Thuente said that the department needs more industry fellowships for graduate students. The current TA stipend is about \$1.4K. The department is considering whether some kind of alignment with universities overseas would add value to the graduate program.

Services Sciences Program Review – Dr. Harry Perros provided a background about the conversations with IBM that led to establishment of the Services Sciences development group. The Services Sciences curriculum program will be based on many standard courses, with two or three focused courses woven in appropriately. Dr. Perros will be asking SAB members for input on what should be in the curriculum—to ensure that the program is beneficial to various types of companies.

SAB Roundtable—discussion of the following topics

Diversity in Computer Science Fund. Since the first proceeds will generate \$1K in July 2006 and the goal of the fund is to focus on K–12 recruiting into computer science, these suggestions were made:

- Apply for a North Carolina Science & Technology Association membership for the department (advertising and recruiting).
- Use funds to sponsor active high school recruiting—schools like AOIT in Apex, where there is a computer science focus.
- Use funds to hire a graduate student or private individual part-time to actively recruit high school students into the program.
- Allow Dr. Vouk to allocate the funds to that initiative, at his discretion.

Organization of SAB. The group selected new officers for '06-'07: Steve Worth, chairman and Wayne Clark, vice-chairman.

SAB Feedback.

- There were multiple accolades for Dr. Vouk's and his vision of the department's future.
- The department must decide how to address these three perceived conflict areas:
 - New learning styles—if the way students learn is changing, the department must adapt.
 - Funding models—as state funding continues to shrink and steady external funding is difficult to find, what is the right balance?
 - Entrepreneurial/academic/corporation education focus—each conflicts some with the others. Which ones should receive the primary and secondary focus?
- Greater use of a merit system seems to be critical for success. Since the state expects each faculty member to teach eight courses per year, merit incentives can be used to encourage additional focus on research, research funding, and graduate student support. Graduate student support is currently about \$50K per year according to Dr. Vouk.
- The department is considering creating new centers. The two basic types are laboratory and investigative/collaboration. In the university system the hierarchy for centers is (high to low) institute, center, laboratory.
 - Three new centers are being considered:
 - Open source (software engineering)
 - Wireless and sensors
 - Gaming
 - By reputation, the CSC department centers should be
 - Security
 - Gaming
 - Software engineering
 - By rising interest areas, the centers would be
 - Systems
 - Visualization
 - Services sciences

University centers must have \$500K committed annual funding. They usually have a formal director and administrative support on-staff. Or a center can be set up or declared by the department and then built over time according to funding. A business plan is required for center development.

Board feedback was varied:

- *Services Sciences Centers* (better name needed) would be appropriate. It is new, bold, and has applicability to companies across the spectrum. It could serve as indirect advertising for corporate investment. Application hosting, training, and performance tuning could be the focus. It could possibly tie in with the Virtual Computing Lab.
- *Security and Software Engineering* would have similar applicability and tie-ins. Recognizable areas of expertise would have to be established and advertised to help differentiate the department from the pack. A link with the MBA program might add business focus and savvy—and a second potential pathway for funding.

- The board recommended the department pursue a focused “branding” and advertisement program to back up the attempt to become in the “top 20.” Consider the faculty and SAB formation of a “What does 2010 look like?” plan to help bridge and bring together common themes for the future. Think about this from a “What is the desired end-state?” perspective and work backward. Consider interviewing a program of key constituents to get current department perceptions and their desires for what the future should be.
- “Flat-world” discussion. As the world continues to flatten, there appears to be new trends. Companies are focused around key technologies; e.g., VCs are regularly investing \$50M–60M in key technology companies. Such companies are starting and staying smaller using talent around the world: employees must be multi-talented and have business sense. Entrepreneurial skills and sense is on the rise.

The department should consider a name change to help reposition the department for the future—make the name fit what the department wants to be. The board would like to continue discussing this topic and its implications via e-mail and voice meetings.

- “Watch your core.” Ensure that considering these futures does not result in loss of the core of the department; e.g., excellent and deep software engineering skills, multi-talented students who can fit in quickly almost anywhere (applications development, embedded systems, services), and sufficient breadth of coverage. Students must understand key principles and know how to apply them.
- SAB meeting Format. Consider alternative formats for delivering preliminary information in advance of the on-site meeting, and use the on-site meeting for future-planning activities. Meet more often, in some fashion, to keep the group associated and working on needs.

The meeting adjourned at 2:35 pm, so that everyone could attend the Engineering Building II dedication ceremony.