Timothy Hickey

Computer Science

C.V. attached

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Faculty Activity Report 2009 - 2010

Instructional Activities

Term	Course Number	Course Description	Enrollment
Fall 2009	COSI 300A 1	MASTERS PROJECT	1
Fall 2009	TYP 1A 1	TYP: Quantitative Reasoning I	10
Summer 2009	COSI 2A 1 [sn]	INTRO TO COMPUTERS	6
Spring 2010	COSI 210A 1	INDEPENDENT STUDY	6
Spring 2010	TYP 1A 1	TYP: Quantitative Reasoning I	8
Fall 2009	COSI 200A 1	READINGS IN COMPUTER SCI	1
Fall 2009	COSI 210A 1	INDEPENDENT STUDY	2
Fall 2009	COSI 65A 1 [sn]	INTRO 3-D ANIMATION	99
Spring 2010	COSI 98B 1	INDEPENDENT STUDY	2
Spring 2010	COSI 210A 12	INDEPENDENT STUDY	2
Spring 2010	COSI 400D 1	DISSERTATION RESEARCH	1
Summer 2009	COSI 11A 1 [sn]	PROGRAMMING:JAVA AND C	5
Spring 2010	FYS 2C 1 [sn]	PHYSICAL SCIENCE FRONTIERS	10
Fall 2009	COSI 400D 1	DISSERTATION RESEARCH	1
Fall 2009	COSI 98A 1	INDEPENDENT STUDY	1
Spring 2010	COSI 133B 1 [sn]	INTERNET AND SOCIETY	70

Teaching innovations:

Creative Use of Technology:
* I screen-recorded most of my lectures in my large classes and made them available to students
* I explored distance education tools for students who were sick or travelling (iChat, Skype, dimdim.com, google wave, collabed) and most were well received.
* I used Rick Alterman's WDP co-blogging software in CS133b allowing students to blog and comment on each others blogs, while providing several tools to enhance group cohesion (e.g nightly activity newsletters....)
* I skyped into to guest lectures on days when I was sick and was able to interact with class and speaker from home
* I created a web-application to allow all 3D Animation students to comment on and review the movies of all their classmates while only seeing their own reviews and anonymous reviews of their work. This encouraged students to reflect on their projects and the work of their peers in an open and safe environment.

Reading courses, theses, dissertations, research projects (undergraduate and graduate):

I was involved in several independent study courses focused on various topics:
* new use of technologies (web and mobile apps, 3d simulation using blender)
* research-based (computational architecture, large-scale simulations of public policy space for health protocols)
* interdisciplinary projects (computational techniques for 3d character design)

Advising and Mentoring (undergraduate advisees, graduate advisees, teaching fellows, other interactions, office hours):

Undergraduate Students: 41 **Graduate Students:** 2

I meet regularly with my teaching fellow to discuss grading and office hours. My own office hours vary week by week so as to hit several different blocks each month.

I arranged monthly meeting of the CS majors (planned together with the UDRs) to discuss topics of interest, including changes in the major, summer opportunities (e.g. JBS), grad school options, new courses, etc.
and to get feedback and suggestions from the students.

Publications, Research and Artistic Creations

Conference Paper(s)

Granville, Kenroy and Hickey, Timothy J. "CollabEd: a Platform for Collaboratizing Existing Editors." International Conference on Mobile, Hybrid, and On-line Learning, Cancun, Mexico. IEEE, Feb 1-7, 2009.

Ongoing Work

I've been working on a major journal paper with my PhD student Kenroy Granville. The paper summarizes 3-4 years of work we have done on collaborative editing.

I've also been working with two MA students on projects that we hope to submit to conferences. One project studies using AI techniques to generated realistic blue prints for homes (especially to be used in 3d game environments), the other explores a methodology for studying public health policy decisions by simulating the consequences of particular disease treatment regimes over a large cohort, and running these simulations for all possible policy options in a large grid space. We then use statistical and visual techniques to study the effects of policy decisions on cost, quality of life, etc.

Finally, I've been working on methods for breaking the digital divide and increasing the percentage of women and students of color who major in Computer Science. The current approach I'm looking at involves developing an online web community and supporting materials to allow high school students to learn how to create 3D games based on Physics engines and visual programming. This work will eventually lead to

publications, but I'm still in
the early stages of developing the materials and conceptual frameworks and applying for grant support.

Service

A&S

09/01/2006 - 08/31/2009 : Representative — Diversity Representative for Faculty Searches

09/01/2007 - 08/31/2010 : Member — School Council

Science Council member

02/01/2009 - 05/01/2009 : Member — CARS committee

02/01/2009 - 06/01/2010 : Co-Chair — Justice Brandeis Semester Committee

01/01/2010 - 04/01/2010 : Member — Brandeis 2020

09/01/2009 - 08/31/2010 : Member — Experiential Learning Committee

09/01/2009 - 08/31/2010 : Chair — School Council

Chair of the Science Council

Department

09/01/2002 - 05/31/2011 : Chair — Department of Computer Science

01/01/2000 - 08/30/2009 : Member — Undergraduate Advising Head

Program

07/01/2001 - 09/01/2010 : Chair — Internet Studies

01/01/2007 - 08/30/2010 : Member — Flim Studies Faculty Committee

University

09/01/2003 - 05/31/2009 : Member — University Advisory Council

Appt extended from 2-yr to 4-yr for staggering term purposes

07/01/2006 - 06/30/2010 : Member — Library and Technology Advisory Committee

09/01/2004 - 06/30/2009 : Member — Davis Committee on Experiential Learning

04/01/2009 - 06/01/2010 : Member — University Homepage committee

09/01/2009 - 08/31/2012 : Member — Faculty Senate

09/01/2009 - 08/31/2010 : Member — Faculty Senate Council

01/01/2010 - 06/01/2010 : Member — Bold Ideas Group committee (BIG)

09/01/2009 - 06/01/2010 : Member — Faculty Development Committee

Other Service

Grant Activity

Grant Proposals

Title: BPC-LSA: Collaborative Research: Computing Undergraduate Scholars Program

Role: Principal Investigator NSF

Total Cost: $172,941 **Start Date:** 01/01/2010 **End Date:** 12/31/2012

Honors and Awards

Intellectual Property

Inventions, patent applications, patents, copyright, software, maskworks, and any other intellectual property that (i) you have conceived or reduced to practice, individually or jointly with others.

Professional Activities Outside the University

Professional activities (delegate, invited presenter, organizer, moderator, etc. at academic conferences, lectures, speeches and presentations) given outside the university.

New England Computer Science Chairs - I've organized over a dozen chairs of CS departments in New England into a group that has regular meetings and works on common problems.

New England Undergraduate Computing Symposium. I am a co-organizer of this symposium that celebrates undergraduate CS projects and research. This is the 2nd year I've helped organize it. I've also built the website for the site (http://neucs.org) including all of the registration and abstract submission code.

Editorial work, reviews of publications, and membership on selection committees for national fellowship and grant programs

Society memberships

Work Outside the University

Courses taught at other institutions.

none

Employment and/or consultant arrangements

none

Management of fiduciary activities in which you have a role as an officer, director, trustee, supervisor, or founder with respect to any corporation, organization, or group

none

Intellectual property which has been developed by you outside of Brandeis University

none

Other

Additional Comments

I would like to transition from the relatively heavy administrative/service workload I have taken on in the past few years and get more involved in research and teaching projects I have been postponing. In particular I'm looking forward to stepping down as Chair of the CS department, chair of the Science Council, and member of the faculty senate council.

The problem I am most interested in tackling is the diversity problem in U.S. Computer Science specifically and in the STEM fields (Science, Technology, Engineering, and Math) in general. For a number of years I've been developing software and educational resources to allow novice students to learn how to program 3D games and to progress from there into standard programming as well as scientific/engineering simulation. I've also been active in several national and local organizations supported by the NSF and devoted to broadening the participation in Computer Science (e.g. ELA) and I've organized regular meetings of representatives of many of the Computer Science departments in the area to pool our resources and work toward increasing diversity. Although this work is far from my more theoretical research, it could have a larger societal impact and I am eager to devote more time to grant writing, software development, outreach, and publication in this area. I'm currently preparing a proposal to NSF to support this project and will continue to seek other funding. I've also been active in TYP as a teacher and I've helped organize the New England Undergraduate Computing Symposium (neucs.org) for the past two years which is designed to attract under-represented students to Computer Science.

As far as teaching goes, I would be interested in developing and teaching a course on Scientific programming which would be geared toward students majoring in a Science field but with no previous background in programming.

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