

Timothy Hickey

C.V. attached

Computer Science

Faculty Activity Report 2006-2007

Instructional Activities

Term	Course Number	Course Description	Enrollment
1 Summer 2006	COSI 98A 1	INDEPENDENT STUDY	1
2 Summer 2006	COSI 155B 1	COMPUTER GRAPHICS	8
3 Fall 2006	COSI 2A 1	INTRO TO COMPUTERS	57
4 Fall 2006	COSI 98A 1	INDEPENDENT STUDY	4
5 Fall 2006	COSI 210A 1	INDEPENDENT STUDY	3
6 Fall 2006	COSI 400D 1	DISSERTATION RESEARCH	2
7 Fall 2006	INET 92A 1	INTERNSHIP & ANALYSIS	1
8 Spring 2007	COSI 65A 1	INTRO 3D ANIMATION	62
9 Spring 2007	COSI 93A 1	RESEARCH INTERNSHIP & ANALYSIS	2
10 Spring 2007	COSI 98B 1	INDEPENDENT STUDY	1
11 Spring 2007	COSI 210A 1	INDEPENDENT STUDY	3
12 Spring 2007	COSI 400D 1	DISSERTATION RESEARCH	3
13 Spring 2007	INET 92B 1	INTERNSHIP & ANALYSIS	1
14 Spring 2007	INET 98B 1	INDEPENDENT STUDY	2

Teaching innovations:

The CS65a Intro to 3D Animation is a new course that introduces students to 3d graphics concepts and 3d graphics programming. It is designed so as to have no prerequisites and the hope is that it will draw students from the humanities, fine arts, and social sciences and encourage them to pursue additional computer science courses. This course uses the open source blender package and relies on class notes, online tutorials, online manuals, and other online resources entirely. This course has been added as an elective in the Film Studies program and I would like to have this course count as a Fine Arts course at some point in the future, assuming I can get a Fine Arts faculty to contribute to the teaching/grading of the course... The course uses wiki technology throughout for all classnotes, syllabi, assignments; and all students bring their laptops to class and follow along in the lectures using their own laptops. This course has attracted students from Fine Arts and Humanities and also has several Posse and TYP students/alumni attending, we are hoping that some of these students will take additional Computer Science courses thereby establishing this course as an alternate entry into the CS minor/major.... I have begun creating video tutorials for this course as a novel pedagogical material but I still need to learn how to stream the tutorials (which can be quite large).

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

I have three PhD students that I am advising, all of who should graduate in the next year (2007-2008). Kenroy Granville is studying collaborative editing and its role in computer supported education. John Langton is studying Visualization Techniques for large Biological databases. Michael Morrell is studying Statistical Machine Learning Approaches to Large Scale Prediction of Student Performance.

I'm have also sponsored 18 independent studies, research internships, reading courses etc over the past year. Most of these are listed on my web page with links to webpages describing their projects. These course range from independent study projects where students read several books and articles, keep a journal, and write a term paper; to research internships where they pose and attempt to tackle some research problem (also keeping a weekly journal or blog, writing a term paper, and delivering a public lecture at the end).

One of my 5th year Master's independent studies (by Michael Meirovich) involves developing a web application for managing the Universities intramural sports activities. The student is working closely with the director of intramural sports at Brandeis and is developing a product which he intends to market outside of Brandeis. His website is very popular with the students and staff and has resulted in a 25-50% increase in intramural activity as compared to last year. In the independent study we discuss technical issues as well as discussing business plans, licencing options, legal issues, etc. I'm thinking of this class as a trial run of an entrepreneurial Computer Science projects class that would be a capstone or thesis for an Entrepreneurial Cosi Masters program.

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

Undergraduate Students: 44 Graduate Students: 3

I have closely supervised Kenroy Granville in his teaching roles for CS11a in the Fall, and CS22a in the Spring. We have recently reenvisioned these courses to be much more structured and to use more interactive computer technology. Kenroy has done a great job. He is a dedicated instructor and he is also enthusiastically pushing the boundaries of instructional technology.

My office hours are M,W 10-11 and other times by appointment....

Publications, Research and Artistic Creations

Conference Paper(s)

Langton, J.T. and Prinz, A and Hickey, Timothy J. "Combining Pixelization and Dimensional Stacking." 2nd International Symposium on Visual Computing (ISVC 2006), Springer, 2006.

Journal Article(s)

Hickey, Timothy J and Taylor, Adam and Prinz, Astrid and Marder, Eve. "Structure and visualization of high dimensional conductance spaces." Journal of Neurophysiology 96. (2006): 891-905.

Forthcoming Publications

John T. Langton, Astrid A. Prinz, and Timothy J. Hickey. "NeuroVis: combining dimensional stacking and pixelization to visually explore, analyze, and mine multidimensional multivariate data." SPIE/VDA 2007, 2007. (forthcoming)

John T. Langton, Astrid A. Prinz, David K. Wittenberg and Timothy J. Hickey. "Leveraging Layout with dimensional stacking and pixelization to facilitate feature discovery and directed queries." Visual Information Expert Workshop (VIEW2006), Paris, France. 2006. (forthcoming)

Ongoing Work

Submitted one paper to the InfoVis2007 conference:

* John T. Langton, Elizabeth Gifford, and Timothy J. Hickey
Visual Discriminant Analysis of Multidimensional Regions
and Boundaries with Dimensional Stacking and NeuroVis

I've worked closely with John Langton in developing the software, NeuroVis, behind this paper and have recently begun to contact biologist around the world that have access to very large databases of the type needed for this type of analysis.

I've also worked closely with Kenroy Granville in developing the GrewpEdit application. This is a collaborative editing program based on a novel technology that allows large groups of people from around the world to simultaneously edit a text document in an operationally transparent manner.

I have also recently started collaborating with a colleague in Germany on the mathlib package I developed several years ago for performing mathematical operations on intervals with guaranteed and precise error bounds.

Service

Arts and Sciences

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

Department Activity

09/01/2002 - 05/31/2008 : Chair Department of Computer Science

01/01/2000 - 08/30/2008 : Member Undergraduate Advising Head

Interdepartmental Programs

07/01/2001 - 08/31/2008 : Chair Internet Studies

01/01/2007 - 08/30/2008 : Member Film Studies Faculty Committee

University Activity

09/01/2003 - 05/31/2007 : Member University Advisory Council

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

07/01/2006 - 06/30/2007 : Member Library and Technology Advisory Committee

09/01/2004 - 06/30/2008 : Member Davis Committee on Experiential Learning

01/01/2006 - 12/31/2006 : Chair Faculty Chair of the Reaccreditation Committee for Library and Info Technology

09/01/2006 - 12/31/2006 : Member Ad hoc Tenure/Promotion Committee

09/01/2006 - 08/30/2007 : Member Brandeis as a Global Institution

09/01/2006 - 08/30/2007 : Member Al Quds/Brandeis Cooperation Committee

09/01/2006 - 08/30/2007 : Member TYP Faculty Oversight Committee

Other Service

Grant Activity

I am preparing for a large multi-department grant to be submitted next December or January to the NSF for the purchase of a large cluster computing facility to be shared by about a dozen research projects across the sciences. I've already begun recruiting faculty to be co-PIs for this project and have begun discussing it with LTS.

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.

* Seminar talk at Emory University in March 2007 on
"Neurovis: visual datamining of grid databases, or, Learning how to see in 8 to 11 dimensions"

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.

Employment and/or consultant arrangements

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

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

Other

Additional Comments