Timothy Hickey

Computer Science

Affiliations

Volen National Center for Complex Systems

Film, Television and Interactive Media

☑ **C.V. attached**

Faculty Activity Report 2011-2012 DRAFT

Instructional Activities

Term	Course Number	Course Description	Enrollment
Summer 2011	COSI 153AJ 1 [sn]	MOBILE APPLICATION DEVELOPMENT	14
Summer 2011	COSI 153BJ 1 [sn]	MOBILE GAME DESIGN	14
Summer 2011	COSI 154AJ 1 [sn]	JBS INCUBATOR	14
Summer 2011	COSI 293A 1	GRADUATE RESEARCH INTERNSHIP	2
Fall 2011	COSI 89AJ 1	RESEARCH INTERNSHIP	4
Fall 2011	COSI 98A 1	INDEPENDENT STUDY	4
Fall 2011	COSI 98AJ 1	INDEPENDENT STUDY	4
Fall 2011	COSI 99D 1	SENIOR RESEARCH	1
Fall 2011	COSI 210A 1	INDEPENDENT STUDY	3
Fall 2011	COSI 210AJ 1	INDEPENDENT STUDY	2
Fall 2011	COSI 293AJ 1	RESEARCH INTERNSHIP	1
Fall 2011	COSI 300A 1	MASTERS PROJECT	2
Fall 2011	COSI 400D 1	DISSERTATION RESEARCH	2
Fall 2011	TYP 6A 1	TYP: COMPUTER SCIENCE	20
Spring 2012	COSI 65A 1 [sn]	INTRO 3-D ANIMATION	77
Spring 2012	COSI 93A 1	RESEARCH INTERNSHIP & ANALYSIS	2
Spring 2012	COSI 98B 1	INDEPENDENT STUDY	7
Spring 2012	COSI 99D 1	SENIOR RESEARCH	1
Spring 2012	COSI 210A 12	INDEPENDENT STUDY	6
Spring 2012	COSI 400D 1	DISSERTATION RESEARCH	2
Spring 2012	EL 94A 7	EXPERIENTIAL LEARNING PRACTICM	7
Spring 2012	TYP 2A 1	TYP: Quantitative Reasoning II	9

Teaching innovations:

I created a new JBS course (with Pito Salas) on Mobile Game Design and taught it as part of the Summer 2011 JBS. I also created an EL 94a practicum as a companion course to my CS65a 3D Animation. In the practicum the students teach 3D Game Design to High School students at Waltham High School and to K-12 students at the Waltham Boys and Girls Club. In the 3D Animation course, I revised the curriculum to center around 3d games and animation. I also created a new TYP Quantitative Reasoning course in which the students learn quantitative reasoning skills by using Matlab to analyze data that they generated from the National Longitudinal Study of Youth 1997. We also read papers that use QR techniques to study the correlation between race/ethnicity and access to resources (such as education, jobs, etc.)

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

I have been involved in a large number of independent study courses this year.
In the Fall semester, I taught
* 3D Mobile Game Design with three JBS alumni who wanted to learn how to created 3D games on mobile devices.
* Android Entrepreneurship with two JBS alumni who wanted to learn how to create and market mobile apps
* Mobile Video with three MA students who were studying issues relating to having a large number of mobile devices broadcasting video streams to each other
* Educational Technology for Large Scale courses with three MA students who wanted to study the problem of creating software to support courses with 100,000+ students similar to the Stanford Public course in Fall 2011
* a JBS Reading course where we read journal articles about mobile devices and wireless networks and security
* a JBS internship course where several students reflected on their internship experiences and wrote papers about their position, their role in the company, and the companies role in the world

In the Spring Semester I taught several independent studies
* Software Entrepreneurship with three undergraduate students who were developing and launching a web-based app to revolutionize the way communities use forums to communicate, this involved developing the software, testing it in various communities, and cycling back to development
* Mobile 3D Game Development - with three MA students and one undergraduate who were studying automatic methods for converting 3D Games from laptops to Android and iPhones/iPads.

* Peer Grading - with three MA students who were studying peer grading technology for large scale classes (100,000+) and investigating implementations using Moodle, Sakai, and the RubyOnRails Canvas system
* Social Course Selection - with one undergraduate studying web-based methods for selecting college courses which can leverage social technology to provide benefits to the community

I also supervised a student on his Senior Honors Thesis on Course Recommender systems where he studied the problem of applying recommender system technology to the problem of Course Selection

I also have two PhD students who are in the final stages of completing their dissertations and should be complete by December.

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

Undergraduate Students: 36 **Graduate Students:** 2

I had one teaching fellow, PhD student last year, but he had a medical incident and was forced to withdraw. He has not returned this year. My office hours vary week by week and I allow students to view my calendar and schedule a time to meet when we are both free.

Publications, Research and Artistic Creations

Ongoing Work

For the last two years I have been switching to a new research area in educational technology. The goal is to create a new platform for introducing students to Computer Science by showing them how to create professional quality 3d games on laptops and mobile devices using a development platform with a built-in Physics simulator and both visual programming and python scripting through an expressive API. After 18 months of development I have begun reaching out to K-12 students in the Waltham area to refine the software and curriculum and my next step is to develop a new CS AP course based on 3D Game Design and try it out. I will be trying this at the BU Stem Academy in Spring 2013 and will be embarking on a qualitative education research program to study the effectiveness of this approach as a new pipeline into Computer Science. I expect to begin generating a sequence of (hopefully) influential papers as we start to see the results of using this new curriculum and the associated software in inner-city high schools.

On my sabbatical semester Fall 2012 I will complete the development of the new CS AP curriculum and the associated gamekit software. This will be the culmination of about 2.5 years of work in this area and will allow me to start running experiments on the effectiveness of this approach.

I've submitted four NSF proposals to support work in this area. Two have been denied and two are outstanding.

I've also been working with Rick Alterman on another educational technology project involving novel blogging software.

Jordan Pollack, Rick Alterman and I have also created an Educational Technology research group this semester and have been having group meetings and have been inviting speakers to give talks on their work in Ed Tech.

Service

Arts and Sciences

09/01/2010 - 08/31/2011 : Member Science Curriculum Committee

Other Service

I have been heavily involved in working with an alumni and development to get a gift to support the salary for a new CS faculty member to teach Entrepreneurial Computer Science courses in web and mobile application development over the next five years. There have been some challenges lately, but I'm still working on this with Jordan Pollack.

I organized a CS Alumni Reunion event with Jordan Pollack last June and will do so again for this June. I've created Facebook groups for all Computer Science reunion classes and have populated many of those groups with alumni from those years. I've also created a local CS Alumni facebook group.

I helped organize a meeting of alumni and trustees to prepare a stratetic planning document on Entrepreneurship at Brandeis.

Department Activity

01/01/2000 - 08/30/2011 : Member Undergraduate Advising Head

Interdepartmental Programs

07/01/2001 - 09/01/2011 : Chair Internet Studies

01/01/2007 - 08/30/2012 : Member Flim Studies Faculty Committee

University Activity

07/01/2006 - 06/30/2012 : Member Library and Technology Advisory Committee

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

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

As chair of the Senate, I'm automatically on the Senate Council

09/01/2009 - 06/01/2012 : Member Faculty Development Committee

09/01/2010 - 08/31/2012 : Chair Faculty Senate

I have been chair of the Faculty Senate for two years

09/01/2010 - 08/31/2012 : Member University Advisory Council

I serve on the UAC due to my position as chair of the Faculty Senate

09/01/2011 - 02/01/2012 : Member Search Committee for CIO and Vice Provost for LTS

09/01/2011 - 12/31/2012 : Member Strategic Planning Steering Committee

Grant Activity

Grant Proposals

Title: Planning Grant: Exploring a 3D Game Design Pipeline from K-12 through College
Role: Principal Investigator **Sponsor:** NSF
Total Cost: $132,917 **Start Date:** 04/01/2012 **End Date:** 03/31/2015

Title: Preliminary Proposal: Excite, Engage, Develop a Scientist for Life - Building a Recreational Engineering Culture
Role: Co Principal Investigator **Sponsor:** NSF
Total Cost: $1,049,488 **Start Date:** 06/01/2012 **End Date:** 05/31/2015

Title: EXP: Doing Homework in a Blogosphere: Improving the activity; Leveraging and assessing the content
Role: Co Principal Investigator **Sponsor:** NSF
Total Cost: $549,995 **Start Date:** 09/01/2012 **End Date:** 08/31/2015

I am just now completing an NSF proposal for $600,000/3 years which is due 4/9/012

Honors and Awards

Title	From	Thru
the Jeanette Lerman-Neubauer '69 and Joseph Neubauer Prize for Excellence in Teaching and Mentoring.	April 2012	

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.

I am constantly writing software, it is part of the fabric of my life and the way I express myself, but I don't think any of that software falls under (i) or (ii).

Professional Activities Outside the University

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

I am one of the founders and organizers of the New England Undergraduate Computing Symposium (NEUCS12) which will be held this year at Brandeis on Saturday 4/21/2012. It brings together 100-150 undergraduates and their mentors and the students present posters, give demos, and a few give talks about interesting and creative projects they've worked on over the previous year. We make a special effort to reach out to women and students of color to let them know they are welcome and we also encourage students in the first year or two of college to present their projects and/or just attend.

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

none

Society memberships

none

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

none

Additional Comments

I've already mentioned that I am moving into educational technology and 3d game design as a research area.

I'm also willing to take over as director of the MA in CS and IT Entrepreneurship starting in Fall 2013.