Research Statement

My research focuses on advancing human-centered computing and human-computer interaction by using computer input such as brain-computer interfaces, physiological and affective computing as well as paradigms based in cognitive and social psychology to build models of user state using machine learning. These user models provide the computer with an increased knowledge of the user, thus allowing for a more intelligent, personalized and adaptive response from the computer to the human.

This broad, application driven research agenda is intrinsically interdisciplinary. In addition to working with my PhD advisor Rob Jacob, this has involved collaborations with experts in many different fields of Computer Science including visual analytics (Remco Chang, Tufts), affective computing and embodied agents (Mary Czerwinski, Microsoft Research), physiological computing (Dan Morris, Microsoft Research), computer graphics and virtual reality (Anthony Steed, UCL), biomedical engineering (Sergio Fantini, Tufts), music and engineering (Paul Lehrman, Tufts), as well as with industry product teams at Microsoft.

Research and Academic Degrees

Fall 2016 onwards
Tenure track Assistant Professor in Computer Science, University of San Francisco. Creating Human-Computer Interaction Lab focusing on adaptive, intelligent systems that respond in real-time to user cognitive and affective state.

Jan 2012 – Spring 2016 PhD in Computer Science, Tufts University, Medford, MA.
Thesis Topic: Adaptive, intelligent user interfaces that respond to user modeling using brain sensing and paradigms in social psychology.
Advisor: Rob Jacob

June – August 2015 Research Intern, Microsoft Research, Redmond, WA.
Research Topic: Engendering Trust between Humans and Embodied Agents (in conjunction with Cortana product team)
Advisor: Mary Czerwinski

Sept 2010 – Sept 2011 MSc in Neuroscience*, King’s College, University of London, UK.
Advisor: Marco Catani

Thesis: "Using a Hybrid BCI in the CAVE to Select and Move Objects"
Advisor: Anthony Steed

Sept 2008 – Sept 2009 MSc in Computer Science*, University College London, University of London, UK.
Thesis: "A Novel Brain-Computer Interface Using a Multi-Touch Surface"
Advisor: Anthony Steed

* MSc degrees in the UK are 12 months in length. BSc degrees in the UK are 3 years in length.
Select Refereed Conference Publications**


Publications - In Submission


Refereed Journal Publications**


** Unlike many academic fields, conferences such as CHI and UIST are highly selective venues with full-length paper archives. Such conference proceedings are viewed as important archival venues with contributions equal to, and sometimes better than, journal papers. For an analysis of the impact of ACM conference proceedings, see Conference Paper Selectivity and Impact by Jilin Chen and Joseph A. Konstan.
Book Chapter Publications


Workshop Papers


Refereed Poster Publications


Technical Reports and Other


Teaching and Advising

Co-Instructor Graduate Class “Affective Interfaces”, Tufts University COMP 250-01, Fall 2015.
Co-created, designed, and taught class with Prof Rob Jacob.

Advisor Senior Undergraduate Thesis Advisor, Tufts University, Fall 2014 – Spring 2015.
Advisee awarded prestigious De Florez Prize in Human Engineering and highest honours for Thesis: “An Adaptive fNIRS-based BCI for Learning Music on the Piano”.

Head Teaching Assistant /Grader “Object Oriented Programming for GUIs”, Tufts University COMP 86, Instructor: Rob Jacob, Fall 2012.
Designed and graded all homework assignments.

Head Teaching Assistant /Grader “Data Structures”, Tufts University COMP 15, Instructor: Ming Chow, Summer 2012.
Graded all homework and lab assignments; ran all lab sessions.

Head Teaching Assistant /Grader “Programming Languages”, Tufts University COMP 105, Instructor: Norman Ramsey, Spring 2012.
Graded all homework assignments and quizzes. This class is well-known for being challenging.
Awards and Honors

2016  Best Paper Award ACM CHI 2016 (first author)
2015  Awarded First Prize at Tufts Ignite (Grad student Competition across all Departments)
2015  Undergrad Advisee Awarded De Florez Prize in Human Engineering (1 student/year)
2015  Grace Hopper Scholarship (21% acceptance rate)
2015  CRA-W Early Career Mentoring Workshop Scholarship
2015  SPIE Travel Grant Award (PW15B, Yuksel 9319-26)
2014  Grace Hopper Scholarship (26% acceptance rate)
2010  Grant for MSc Neuroscience, King’s College London
2006  Dean’s Prize for Biological Sciences, University of Lincoln, UK (Top student in Dept)
2005  Vacation Scholarship for undergraduate research from UFAW

Professional Service - Reviewing

- ACM Transactions on Computer Supported Cooperative Work (CSCW) 2015
- IEEE Computer 2015
- Int. Journal of Human-Computer Studies (IJHCS) 2015
- Physiological Computing Systems (PhyCS) 2014

Invited Talks


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Professional Service for Diversity

- Founder and President of Graduate Women in CS Group - meet weekly
- Applied for funding for Women in CS from Diversity Fund Committee
- Given Technical Talks at All-Women’s Colleges and at Grace Hopper
- Procured Funding to students to Lesbians Who Tech Conference 2016
- Served on Graduate Panel in oSTEM chapter (out in STEM)
- Currently Reviving ACM-W Chapter
- Working with Two Faculty Members to Organize Speakers for Women in CS

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Selected Press

Feb 2016 This Brain Reading Tool can Teach You a New Skill in No Time Fast Company. http://www.fastcompany.com/3056869/this-brain-reading-tool-can-teach-you-a-new-skill-in-no-time/


March 2014 Warning: your brain is overheating. The Times (London). http://www.thetimes.co.uk/tto/science/article4023140.ece


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