

Orit Shaer

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Education

- 2005-2008 **TUFTS UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE** **Medford, MA**
PhD in Computer Science
Dissertation: *A Visual Language for Programming Tangible User Interfaces*. Advisor Robert Jacob.
Awarded Outstanding Graduate Contributor to Engineering Education. GPA: 4.0 / 4.0
- 2002-2004 **TUFTS UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE** **Medford, MA**
Master of Science in Computer Science
GPA: 4.0 / 4.0
- 1998-2001 **THE ACADEMIC COLLEGE OF TEL-AVIV** **Tel-Aviv, Israel**
Bachelor of Arts degree in Computer Science
Dean's honors list

Research and Professional Experience

- 2008-Present **WELLESLEY COLLEGE, DEPARTMENT OF COMPUTER SCIENCE** **Wellesley, MA**
Tenure Track Assistant Professor
- 2003-2008 **TUFTS UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE** **Medford, MA**
Research Assistant
 - Designed and developed a visual programming language aimed at accelerating the design and implementation of tangible user interfaces (TUIML). Awarded the 'CHI Doctoral Consortium Award' at the ACM Conference on Human Factors in Computing Systems.
 - Co-designed and developed five tangible user interfaces, including a collaborative video authoring tool and a visualization environment for science education. Used computer vision, RFID and microcontrollers. Presented at the International conference on Tangible and Embedded Interaction.
- 2005-2006 **UNIVERSITY COLLEGE LONDON, INTERACTION CENTRE** **London, UK**
Honorary Research Fellow
Advisor: Ann Blandford
 - Created a top level architecture and module prototypes for a Tangible User Interface Management System that utilize TUIML specifications to implement tangible user interfaces using heterogeneous technologies.
- 2003-2004 **UNIVERSITY OF WASHINGTON, DESIGN MACHINE GROUP** **Seattle, WA**
Visiting Researcher
Advisors: Ellen Yi-Luen Do, Mark Gross
 - Developed an end-user programmable physical user interface for collaborative interaction in public spaces. Presented at the Pervasive Computing Conference.
- 2000-2001 **ORBOTECH LTD. R&D DIVISION** **Yavne, Israel**
System Engineer
Led a multidisciplinary team of seven engineers through the design, development and successful launch of an electro optical product.
- 1998-2000 **Software Developer**
 - Developed core product features for a cross platform, client server product, using C, C++, MFC, STL.
- 1994-1997 **ISRAELI AIR FORCE** **Tel-Aviv, Israel**
Educational Officer, Lieutenant
Led a team of eight. Responsible for all educational and cultural activity in a 5,000-person facility.

Teaching Experience

2005-2008	TUFTS UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE Instructor <i>Tangible User Interfaces Laboratory</i> (co-instructor: Spring 2005, 2006, 2007, 2008, instructor: Summer 2007) Initiated, developed and taught a graduate level Human-Computer Interaction course that fosters innovation, interdisciplinary collaboration and hands-on learning.	Medford, MA
2005-2008	TUFTS UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE Independent Study Advisor Advised and supervised undergraduate and graduate students in an independent study.	Medford, MA
2002-2005	TUFTS UNIVERSITY, DEPARTMENT OF COMPUTER SCIENCE Teaching Assistant <i>Object Oriented Programming for GUIs, Programming Languages, Data Structures, Computer Graphics.</i>	Medford, MA
1997-1999	IBM TRAINING CENTER Instructor Database systems, Programming User Interfaces with Visual Basic.	Tel-Aviv, Israel

Awards

2008	Clare Boothe Luce Professorship (effective September 2009)
2007	Outstanding Graduate Contributor to Engineering Education, Tufts University.
2002-2007	Merit-based scholarship and full tuition, Tufts University.
2006	Graduate Consortium Award, IEEE Symposium on Visual Languages and Human-Centric Computing.
2005	CHI Doctoral Consortium Award, ACM Conference on Human Factors in Computing Systems.
2004	Grace Hopper Scholarship for the Celebration of Women in Computing.
2003	Summer Institute of College Teaching scholarship, Tufts University.
2003	Graduate Student Symposium Award for Best Presentation (2 nd place) Tufts University.
2001	Dean's Honors List, The Academic College of Tel Aviv.

Publications

Journal and Magazine Articles (Peer Reviewed)

- O. Shaer, M.S. Horn and R.J.K. Jacob, "Tangible User Interface Laboratory: Teaching Tangible Interaction Design in Practice", AIEDAM Special Issue on Tangible Interaction for Design, Spring 2009, Vol. 23, No. 2 (*To Appear*).
- O. Shaer, N. Leland, E.H. Calvillo and R.J.K. Jacob, "The TAC Paradigm: Specifying Tangible User Interfaces", *Personal and Ubiquitous Computing*, vol. 8, no. 5, pp. 359-369, September 2004.
- R.J.K. Jacob, A. Girouard, L.M. Hirshfield, M. Horn, O. Shaer, E.T. Solovey, and J. Zigelbaum, "What Is the Next Generation of Human-Computer Interaction?", *interactions*, vol. 14, no. 3, pp. 53-58, May 2007.

Conference Papers (Peer Reviewed)

- R.J.K. Jacob, A. Girouard, L.M. Hirshfield, M.S. Horn, O. Shaer, E.T. Solovey, and J. Zigelbaum, "Reality-Based Interaction: A Framework for Post-WIMP Interfaces", ACM CHI 2008 Human Factors in Computing Systems Conference, ACM Press, April 2008 (in print). (Acceptance rate 22%)
- O. Shaer, R.J.K. Jacob, M. Green, K. Luyten, "User Interface Description Languages for Next Generation User Interfaces", ACM CHI 2008 Human Factors in Computing Systems Conference, Workshop Abstract, April 2008 (in print). (Acceptance rate 40%)
- A. Bean, S. Siddiqi, A. Chowdhury, B. Whited, O. Shaer, R.J.K. Jacob "Marble Track Audio Manipulator (MTAM): A Tangible User Interface for Audio Composition", Proc. TEI 2008 International Conference on Tangible and Embedded Interaction, February 2008 (in print).
- R.J.K. Jacob, A. Girouard, L.M. Hirshfield, M.S. Horn, O. Shaer, E.T. Solovey, and J. Zigelbaum, "Reality-Based Interaction: Unifying the New Generation of Interaction Styles," ACM CHI 2007 Human Factors in Computing Systems Conference, ACM Press, Work in Progress paper, April 2007. (Acceptance rate 40%)
- A. Girouard, E.T. Solovey, L. Hirshfield, S. Ecott, O. Shaer, and R.J.K. Jacob, "Smart Blocks: A Tangible Mathematical Manipulative," Proc. TEI 2007 International Conference on Tangible and Embedded Interaction, February 2007.
- J. Zigelbaum, M. Horn, O. Shaer, and R.J.K. Jacob, "The Tangible Video Editor: Collaborative Video Editing with Active Tokens," Proc. TEI 2007 First International Conference on Tangible and Embedded Interaction, February 2007.
- O. Shaer and R.J.K. Jacob, "A Visual Language for Programming Reality-Based Interaction", IEEE Symposium on Visual Languages and Human-Centric Computing, Graduate Student Consortium, September 2006.
- O. Shaer "A Framework for Building Reality-Based Interfaces for Wireless-Grid Applications", ACM CHI 2005, Doctoral Consortium, April 2005. (Acceptance rate 24%).

Workshop Papers (Peer Reviewed)

- M.S. Horn, O. Shaer, A. Girouard, L.M. Hirshfield, E.T. Solovey, J. Zigelbaum, and R.J.K. Jacob, "Putting Tangible User Interfaces in Context: A Unifying Framework for Next Generation HCI", Proc. ACM CHI 2007 Workshop on Tangible User Interfaces in Context and Theory, April 2007.
- N. Leland, O. Shaer, and R.J.K. Jacob, "TUIMS: Laying the foundations for a Tangible User Interface Management System", Proc. Pervasive 2004 Workshop on Toolkit Support for Interaction in the Physical World, April 2004.
- O. Shaer and R.J.K. Jacob, "Toward a Software Model and a Specification Language for Next-Generation User Interfaces," Proc. ACM CHI 2005 Workshop on The Future of User Interface Software Tools, April 2005.

Technical Reports

- O. Shaer, R.J.K. Jacob, M. Green, K. Luyten, "User Interface Description Languages for Next Generation User Interfaces", CHI 2008 Workshop Proceedings, TR-2008-2, Tufts University, 2008.
- O. Shaer, R.J.K. Jacob, "TUIMS: Laying the Foundations for a Tangible User Interface Management System", TR-2005-2, Tufts University, 2005.
- J. Zigelbaum, M.S. Horn, O. Shaer, and R.J.K. Jacob, "Tangible Video Editor: Designing for Collaboration, Exploration and Engagement", TR-2005-9, Tufts University, 2005.

Invited Talks

Reality Based Interaction: Understanding Next Generation User Interfaces

BostonCHI, Sun Microsystems, June 2008.

Specifying and Programming Next Generation User Interfaces

Wellesley College, Computer Science Department, February 2008.

Reality Based Interaction: Providing Context for Tangible Interaction

MIT Media Lab, Tangible Media Group, February 2008.

Designing Reality Based Interactions

MIT Media Lab, Tangible Media Group, October 2007.

User Interface Software Tools, Principles and Trends

ACM CHI'07 Course, Introduction to Human Computer Interaction, April 2007.

A Visual Language for Programming Tangible User Interfaces

University College London Interaction Center, November 2005.

People Pretzel: Playful Interaction in Public Spaces

Design Computing Research Forum, University of Washington, April 2004.

Retargetable User Interfaces for Wireless Grids

Wireless Grids Project Meeting, Boston University, October 2004.

Tangible User Interfaces are not WIMP, a Unified Conceptual Framework for Tangible User Interfaces

MIT Media Lab, Tangible Media Group, October 2004.

Computer Science Department Colloquium, Tufts University, March 2003.

Design Computing Research Forum, University of Washington, November 2003.

Professional Activities and Community

Workshop Chair

ACM CHI International Conference on human Factors in Computing Systems , workshop on User Interface Description Languages for Next Generation User Interfaces, April 2008.

Co-organizers: R.J.K Jacob, M. Green and K. Luyten

Reviewer

ACM CHI International Conference on human Factors in Computing Systems , 2005-2009

(Awarded special recognitions for outstanding review, 2005)

Grace Hopper Celebration of Women in Computing, 2008

HCI 2006

The Journal of Personal and Ubiquitous Computing

The Journal of Software: Practice and Experience

IEEE Transactions on Systems, Man, and Cybernetics

The Journal of Advances in Human-Computer Interaction

Artificial Intelligence for Engineering Design, Analysis and Manufacturing

International Journal of Arts and Technology

IwC Journal (Interacting with Computers)

Program Committee

International Conference on Tangible and Embedded Interaction (TEI) 2007-2008

Computer Aided Design of User Interfaces (CADUI) 2008

Student Volunteer

Ubicomp 2003

Board Member

Alliance of Technology and Women, Seattle chapter, 2004

Yal-Day-New, co-president, 2007

Mentor

TechReach mentoring program, mentoring at-risk middle school girls in experiencing the science and technology fields, 2004

Member

Association for Computer Machinery (ACM)

Association for Computer Machinery Special Interest Group on Computer-Human Interaction (ACM SIGCHI)

IEEE Computer Society

Alliance of Technology and Woman

Supervised Students

Chloe Fan, Senior, Wellesley College, Wüimote Integration in Multimedia Applications, Summer 2008.

Amy Von Holten, Senior, Tufts University, A Visual Editor for Programming TUIs, Fall 2007.

Sabina Siddiqi, Masters student, Tufts University, A Tangible Audio Manipulator, Summer 2007.

Jamie Zigelbaum, Senior, Tufts University, A Tangible Video Editor, Summer 2005.

Katelyn Mann, Masters student, Tufts University, A Visual Language for Programming TUIs, Spring 2005.

Jeff Livingston, Masters student, Tufts University A Visual Editor for Programming TUIs, Spring 2005.

Aaron Cutter, Masters student, Tufts University, Message Cubes Voice User Interface, Fall 2004.