

Joe Tullio

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Research Interests

My projects share a common theme in that they examine the adoption issues and practices resulting from the introduction of new technologies in real-world settings. In the past, I have worked in domains such as medical robotics, intelligent groupware tools, and interactive television, often with interdisciplinary teams consisting of technologists, social scientists, and domain experts. I am skilled in the use of formative ethnographic techniques to define a research problem, and have the technical background to design and develop prototypes suitable for deployment. I can then use both qualitative and quantitative evaluation methods to validate the prototype in the field, suggest design guidelines for future prototypes, and contribute to the body of knowledge in human-computer interaction.

Education

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| May2005 | Ph.D., Computer Science
College of Computing, Georgia Institute of Technology
Thesis title: <i>Exploring the Design and Use of Forecasting Groupware Applications with an Augmented Shared Calendar</i>
Advisor: Dr. Elizabeth Mynatt |
| Dec1995 | B.S. Computer Science
School of Engineering and Applied Science,
University of Virginia |

Research Experience

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| August2006-Present | Senior Research Engineer
Motorola Labs |
| May2005 to June2006 | Postdoctoral Fellow
Human-Computer Interaction Institute, Carnegie Mellon University
Investigated how users come to understand the operation of intelligent, context-aware systems as they interact with them in everyday settings. |
| Sep1998 to May2005 | Research Assistant
College of Computing, Georgia Institute of Technology
Advisor: Dr. Elizabeth Mynatt
Explored the use of intelligent systems to forecast the future state of users in groupware applications. |

- May2001 – Aug2001 **Summer Intern**
Accenture Technology Labs
Manager: Joe McCarthy
Developed tools for community awareness using peripheral displays.
- May2000 – Aug2000 **Summer Intern**
Intel Microprocessor Research Labs
Manager: Ticky Thakkar
Worked on a speech user interface to a context-aware mobile messaging system for an internal venture.
- Jun1999 – Aug1999 **Summer Intern**
Microsoft Research
Mentor: Eric Horvitz
Worked on the Attentional Systems Project within the Adaptive Systems and Interaction (ASI) Group.
- Apr1996 – Nov1997 **User Interface Research**
Neurosurgical Visualization Lab, University of Virginia
Designed and implemented the user interface to a surgical telementoring system. System allows a neurosurgeon to remotely operate a robotically-transported surgical microscope and communicate with the Operating Room team.
- Feb1995 – Dec1995 **Interactive Graphics Research**
Neurosurgical Visualization Lab, University of Virginia
Developed experimental software for testing the interactive manipulation of 3-D models using 3-D input techniques. Performed experiments using this software that led to published work in ACM UIST, 1997.

Professional Experience

- Oct2004 – June2005 **Finder/Writer**
Technology Review Magazine
Identified and reported on new and interesting research in the field of HCI.
- Nov1997 – Aug1998 **Software Developer**
Varian Medical Systems
Developed a large component of a shipped Windows 95/NT application for computerized planning of prostate cancer therapy.
- Feb1994 – July1994 **Software Developer**
Taurus Technologies, Inc.
Designed the X-Windows GUI for the console of a fossil power plant simulator using Motif and Tcl/Tk. Wrote database conversion utilities, archiving tools, and help systems for simulators.

Publications

Journal Articles and Book Chapters

- [J.1] Harboe, G., Metcalf, C., Tullio, J., Massey, N., Romano, G., Huang, E., and Bentley, F. (2008) Examining Presence and Lightweight Messaging in a Social Television Experience. *ACM Transactions on Multimedia Computing, Communications, and Applications*, to appear.

Conference Full Papers

- [C.11] Lee, Y.S., Tullio, J., Narasimhan, N., Kaushik, P., Englesma, J.R., and Basapur, S. (2009) Investigating the Potential of In-Home Devices for Improving Medication Adherence. *Proceedings of the 3rd International Conference on Pervasive Computing Technologies for Healthcare 2009*, to appear.
- [C.10] Huang, E., Harboe, G., Tullio, J., Novak, A., Massey, N., Metcalf, C., and Romano, G. (2009) Social Television Comes Home: A Field Study of Communication Choices and Practices in TV-Based Text and Voice Chat, *Proceedings of the ACM Conference on Human Factors in Computing Systems* (CHI 2009).
- [C.9] Harboe, G., Metcalf, C., Bentley, F., Tullio, J., Massey, N., and Romano, G. (2008) Ambient Social TV: Drawing People into a Shared Experience. *Proceedings of the ACM Conference on Human Factors in Computing Systems* (CHI 2008).
- [C.8] Tullio, J. and Mynatt, E. (2007) Use and Implications of a Shared, Forecasting Calendar. *Proceedings of the IFIP International Conference on Human-Computer Interaction* (Interact 2007).
- [C.7] Tullio, J., Dey, A.K., Chalecki, J., and Fogarty, J. (2007) How it Works: A Field Study of Non-Technical Users Interacting with an Intelligent System. *Proceedings of the ACM Conference on Human Factors in Computing Systems* (CHI 2007).
- [C.6] Tullio, J., Goecks, J., Mynatt, E., Nguyen, D. (2002) Augmenting Shared Personal Calendars. *Proceedings of the ACM Symposium on User Interface Software and Technology* (UIST 2002).
- [C.5] MacIntyre, B., Mynatt, E., Volda, S., Hansen, K. M., Tullio, J., Corso, G. (2001) Support For Multitasking and Background Awareness Using Interactive Peripheral Displays. *Proceedings of the ACM Symposium on User Interface Software and Technology* (UIST 2001).
- [C.4] Mynatt, E. and Tullio, J. (2001) Inferring Calendar Event Attendance. *Proceedings of the ACM Conference on Intelligent User Interfaces* (IUI 2001).
- [C.3] Downs, J.H., Graves, B., Shi, M., Tullio, J., Aylor, B. F., Gates, R. G. and Kassell, N. (1998) IRNS: A System for Telerobotic Surgical Mentoring. *IEEE Symposium on Computer-Based Medical Systems*, pp. 182-186.
- [C.2] Hinckley, K., Tullio, J., Pausch, R., Proffitt, D., and Kassell, N. (1997) Usability Analysis of 3D Rotation Techniques, *Proceedings of the ACM Symposium on User Interface Software and Technology* (UIST 1997).
- [C.1] Graves, S., Tullio, J., Shi, M., and Downs, J.H. (1997) An Integrated Remote Neurosurgical System, *First International Joint Conference CVRMed-MRCAS '97*.

Conference Short Papers, Posters, and Doctoral Consortia

- [c.3] Tullio, J. and Harboe, G. (2008) Investigating the Use of Voice and Text Chat in a Social Television System, *European Interactive TV Conference (EuroITV 2008)*.
- [c.2] Tullio, J. (2003) Augmenting Groupware with Intelligence. *ACM UIST 2003 Conference Companion* (Doctoral Consortium).
- [c.1] Huang, E., Tullio, J., Costa, T., McCarthy, J. (2002) Promoting Awareness of Work Activities Through Peripheral Displays. *CHI 2002 Extended Abstracts*.

Workshops

- [W.4] Dey, A. and Tullio, J. (2008) Adding Intelligibility to Machine Learning-Based Interactive Systems, *CHI 2008 Workshop on Usable AI*, Florence, Italy.

- [W.3] Bentley, F., Tullio, J., Metcalf, C., Harry, D., and Massey, N. (2007) A Time to Glance: Studying the use of Mobile Ambient Information, *Pervasive 2007 Workshop on Ambient Information Systems*, Toronto.
- [W.2] Tullio, J. and Mynatt, E. (2003) Managing Persona in Groupware Augmented With Intelligent User Interfaces, *In Proceedings of the 2003 Human-Computer Interaction Consortium* (Boaster), Winter Park, CO.
- [W.1] McCarthy, J., Costa, T., Huang, E., and Tullio, J. (2001) Defragmenting the Organization: Disseminating Community Knowledge through Peripheral Displays. *ECSCW 2001 Workshop on Community Knowledge*, Bonn, Germany.

Theses

- [TH.2] Tullio, J. (2005) Exploring the Design and Use of Forecasting Groupware Applications with an Augmented Shared Calendar, Ph.D. Thesis, Dr. Elizabeth Mynatt (Advisor), College of Computing, Georgia Institute of Technology.
- [TH.1] Tullio, J. (1995) A Comparison of Spatial Input to Alternative Methods in 3-D Object Manipulation. Undergraduate Thesis, University of Virginia.

Other

- [O.2] Jensen, C., Tullio, J., Potts, C., and Mynatt, E.D. (2005) STRAP: A Structured Analysis Framework for Privacy, GVU Technical Report #GIT-GVU-05-02.
- [O.1] Nguyen, D.H., Tullio, J., Drewes, T. and Mynatt, E.D. (2000) Dynamic Door Displays. GVU Technical Report #GIT-GVU-00-30.

Inventions/Patents

- [P.2] Displaying Television Status Information on an Ambient Display (Bentley, F., Harboe, G., Massey, N., Metcalf, C., Romano, G., Tullio, J.) U.S. Patent Application # 11/77817, Filed June 29, 2007.
- [P.1] Method for Coordinating Activity Within a Shared Media Experience (Massey, N., and Tullio, J.) U.S. Patent Application #11/965096, Filed December 27, 2007.

Honors/Awards

- GVU Student Representative, HCIC Workshop, 2003
- Finalist, Microsoft Fellowship, 1999
- NSF/Graphics, Visualization, and Usability Center Fellowship, 1998-99
- University of Virginia Dean's List, 1994-1995

Professional Societies

- Member, Association for Computing Machinery (1995 – Present)
- Member, ACM SIGCHI Special Interest Group on Human-Computer Interaction (1997 – Present)
- Member, ACM SIGGRAPH Special Interest Group on Computer Graphics (1996-2002)

Professional Activities

Organizer

- CHI 2004 Workshop on Forecasting Presence and Availability (with James “Bo” Begole, Eric Horvitz, and Elizabeth Mynatt)
- EuroITV 2008 Workshop on Sharing Content and Experiences with Social iTV (with David Geerts and Gunnar Harboe)

Reviewer

- ACM Transactions on Computer-Human Interaction (TOCHI) 2007
- ACM Transactions on Information Systems (TOIS) 2007
- CHI 2001-2009 (Recognition for exceptional reviews, 2003, 2005)
- CSCW 2004, 2006, 2008 (Exceptional review 2004)
- Graphics Interface 2005, 2007
- Group 2005
- Intelligent User Interfaces (IUI) 2008-2009
- International Symposium on Wearable Computers 2008
- Pervasive Health 2009
- Symposium on Interactive 3D Graphics 2003
- UbiComp 2001, 2003
- UIST 1999, 2001, 2003-2005, 2007, 2008

Conference Committees

- Posters Co-Chair with Steve Volda, UIST 2007
- Posters Co-Chair with Jeff Pierce, UIST 2006
- Demos Program Committee, UIST 2005
- Student Volunteers Co-Chair with James Fogarty, UIST 2004

Student Volunteer

- International Workshop on the Mathematics & Algorithms of Social Insects 2004
- UIST 2001
- ACM Symposium on Interactive 3D Graphics 1999