

ALLISON WOODRUFF

INTEL LABS BERKELEY
2150 SHATTUCK AVENUE #1300, BERKELEY, CA 94704
(510) 495-3012 • woodruff@acm.org
www.allisonwoodruff.com

PROFILE

Allison Woodruff is a human-computer interaction researcher who uses social science methods to study people and their relationships with technology, drawing on the results to rethink existing technologies and invent new technologies. She has conducted qualitative studies and technology interventions in a wide range of settings, such as green homes, museums, amusement parks, religious environments, low-income neighborhoods, street sweeper maintenance yards, and traditional work environments. She has also partnered with quantitative researchers to develop and study novel web search and information visualization tools. She often studies extreme users who take unusual measures in their use of technology, in order to uncover problems with existing computing paradigms and to draw inspiration for the design of new technologies for the broader population. Her current project is on mobile environmental sensing and public policy (www.communitysensing.org).

EXPERIENCE

Research Scientist, Intel Labs Berkeley, 2004-present

Conducted research in human-computer interaction, ubiquitous computing, and mobile computing. Projects included:

Mobile Environmental Sensing: Co-principal investigator and project manager for the design and development of a mobile air quality sensing platform. Led qualitative and usability studies of over 100 participants. Led real-world deployments of sensors and software. Conducted extended participant-observation in a community action group. Gathered system requirements from over 50 organizations around the world. Co-designed personal mobile sensing device that received a Gold Award in the Spark Awards International Design Competition. Managed complex relationships and deliverables of academic, industrial, non-profit, and government collaborators. Acted as lead press spokesperson. Presented work to the highest levels of the EPA.

Sustainability: Co-principal investigator on project to investigate green consumers and transform the findings into product design. Conducted contextual inquiry in 35 green homes in 7 cities and translated findings into design implications for a product group. Co-authored quantitative Nielsen survey of green consumers in six countries and collaborated on the transfer of these results to a business group. Co-produced experimental and documentary films about people who choose sustainable lifestyles. Initiated corporate strategic process on sustainability that was presented to the highest levels of Intel management.

Domestic Technology: Principal investigator on project studying people's relationships with technology in the home. Led sensor deployment and qualitative interviews to study people's use of physical space and mobile devices in the home, supervised machine learning analysis of sensor data, and drew on findings to co-design novel mobile devices and technologies for the home. Led contextual inquiry in 20 homes on the use of home automation systems on the Sabbath, and drew implications about technology overload in the general public. Identified usability issues with home automation systems and transferred findings to a business group.

Research Scientist, Xerox PARC, 1998-2004

Conducted research in human-computer interaction, mobile computing, media spaces, web search, and information visualization. Projects included:

Social, Mobile Audio: Collaborated on the design, development, and study of novel mobile audio communication systems. Conducted participant-observation of young adult use of mobile

communication devices and leveraged findings to co-invent novel audio communication services. Co-supervised development of machine learning algorithms to detect emotional state of speakers. Collaborated on conversation analysis that demonstrated significant benefits of these services.

Electronic Guidebooks: Designed novel wireless electronic guidebook that facilitates social interaction. Led iterative design process, pilot deployment, and three qualitative studies of prototype use by 70 people in a real-world setting.

Web Search Interfaces: Invented and co-designed novel enhanced thumbnail and web browsing interfaces. Co-designed quantitative studies comparing people's performance using traditional and novel web search interfaces and led qualitative study of use in real-world settings, demonstrating significant advantages of new techniques.

Information Visualization: Co-designed and executed quantitative studies of human visual perception. Analyzed usability issues and derived design principles for multiple view systems.

Research Analyst, California Department of Water Resources, 1992-1994

Conducted research on computational support for climate change scientists. Projects included:

Automated Indexing of Geographic Locations: Designed and developed system to automatically extract geographic locations from text documents.

Climate Change Research: Acted as liaison to academic and industrial consortium developing novel computing technologies to support climate change research.

EDUCATION

Ph.D., Computer Science, University of California, Berkeley, 1998

M.S., Computer Science, University of California, Davis, 1993

M.A., Linguistics, University of California, Davis, 1989

B.A., English, California State University, Chico, 1987

PROFESSIONAL PROGRAMS

Attingham Summer School for the Study of Historic Houses and Collections, 1999 and 2000

Management of Technology Certificate, University of California, Berkeley, 1998

Decorative Arts Certificate, Christie's Education, 1998

SELECTED PUBLICATIONS

R. Aipperspach, B. Hooker, and A. Woodruff. "Data Souvenirs: Environmental Psychology and Reflective Design." *International Journal of Human-Computer Studies*, to appear.

W. Willett, P. Aoki, N. Kumar, S. Subramanian, and A. Woodruff. "Common Sense Community: Scaffolding Mobile Sensing and Analysis for Novice Users." *Proc. 8th International Conf. on Pervasive Computing (Pervasive 2010)*, Helsinki, Finland, May 2010, 301-318. **Best Paper Award**

P.M. Aoki, R.J. Honicky, A. Mainwaring, C. Myers, E. Paulos, S. Subramanian, and A. Woodruff. "A Vehicle for Research: Using Street Sweepers to Explore the Landscape of Environmental Community Action." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2009)*, Boston, MA, Apr. 2009, 375-384. **Best Paper Nominee**

P.M. Aoki, M.H. Szymanski, and A. Woodruff. "Bringing Media Spaces Back to the Streets: Notes on the Interplay of Research on Media Space and Mobile Communication." In *Media Space: 20+ Years of Mediated Life* (S. Harrison, ed.). Springer-Verlag, 2009, 287-301.

- R. Aipperspach, B. Hooker, and A. Woodruff. "The Heterogeneous Home." *Proc. 10th International Conf. on Ubiquitous Computing (UbiComp 2008)*, Seoul, Republic of Korea, Sept. 2008, 222-231.
- A. Woodruff, J. Hasbrouck, and S. Augustin. "A Bright Green Perspective On Sustainable Choices." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2008)*, Florence, Italy, Apr. 2008, 313-322.
- A. Woodruff. "You Can Go Home Again: Revisiting a Study of Domestic Computing." In *HCI Remixed* (T. Erickson and D.W. McDonald, eds.), MIT Press, 2008, 241-246.
- M.H. Szymanski, P.M. Aoki, R.E. Grinter, A. Hurst, J.D. Thornton, and A. Woodruff. "Sotto Voce: Facilitating Social Learning in a Historic House." *Computer Supported Cooperative Work*, 17(1):5-34, 2008.
- A. Woodruff, K. Anderson, S. Mainwaring, and R. Aipperspach. "Portable, But Not Mobile: A Study of Wireless Laptops in the Home." *Proc. 5th International Conf. on Pervasive Computing (Pervasive 2007)*, Toronto, Ontario, May 2007, 216-233.
- A. Woodruff, S. Augustin, and B.E. Foucault. "Sabbath Day Home Automation: 'It's Like Mixing Technology and Religion'." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2007)*, San Jose, CA, Apr. 2007, 527-536. **Best Paper Nominee**
- P.M. Aoki, M.H. Szymanski, L. Plurkowski, J.D. Thornton, A. Woodruff, and W. Yi. "Where's the 'Party' in 'Multi-Party'? Analyzing the Structure of Small-Group Sociable Talk." *Proc. ACM Conf. on Computer Supported Cooperative Work (CSCW 2006)*, Banff, Alberta, Nov. 2006, 393-402.
- R. Aipperspach, T. Rattenbury, A. Woodruff, and J. Canny. "A Quantitative Method for Revealing and Comparing Places in the Home." *Proc. 8th International Conf. on Ubiquitous Computing (UbiComp 2006)*, Orange County, CA, Sept. 2006, 1-18.
- M.H. Szymanski, P.M. Aoki, E. Vinkhuyzen, and A. Woodruff. "Organizing a Remote State of Incipient Talk: Push-to-Talk Mobile Radio Interaction." *Language in Society*, 35(3): 393-418, 2006.
- S.D. Mainwaring and A. Woodruff. "Investigating Mobility, Technology, and Space in Homes, Starting with 'Great Rooms'." *Proc. 1st Ethnographic Praxis in Industry Conf. (EPIC 2005)*, Redmond, WA, Nov. 2005, 188-195.
- P.M. Aoki and A. Woodruff. "Making Space for Stories: Ambiguity in the Design of Personal Communication Systems." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2005)*, Portland, OR, Apr. 2005, 181-190. **Best Paper Award**
- A. Woodruff and P.M. Aoki. "Conversation Analysis and the User Experience." *Digital Creativity*, 15(4):232-238, 2004.
- A. Woodruff and P.M. Aoki. "Push-to-Talk Social Talk." *Computer Supported Cooperative Work*, 13(5-6):409-441, 2004.
- C. Yu, P.M. Aoki, and A. Woodruff. "Detecting User Engagement in Everyday Conversations." *Proc. 8th International Conf. on Spoken Language Processing (ICSLP '04) (Vol. 2)*, Jeju Island, Republic of Korea, Oct. 2004, 1329-1332.
- A. Woodruff and P.M. Aoki. "How Push-to-Talk Makes Talk Less Pushy." *Proc. ACM SIGGROUP Conf. on Supporting Group Work (GROUP 2003)*, Sanibel Island, FL, Nov. 2003, 170-179.
- P.M. Aoki, M. Romaine, M.H. Szymanski, J.D. Thornton, D. Wilson, and A. Woodruff. "The Mad Hatter's Cocktail Party: A Social Mobile Audio Space Supporting Multiple Conversations." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2003)*, Fort Lauderdale, FL, Apr. 2003, 425-432.
- R.E. Grinter, P.M. Aoki, A. Hurst, M.H. Szymanski, J.D. Thornton, and A. Woodruff. "Revisiting the Visit: Understanding How Technology Can Shape the Museum Visit." *Proc. ACM Conf. on Computer Supported Cooperative Work (CSCW 2002)*, New Orleans, LA, Nov. 2002, 146-155.

- A. Woodruff, M.H. Szymanski, R.E. Grinter, and P.M. Aoki. "Practical Strategies for Integrating a Conversation Analyst in an Iterative Design Process." *Proc. 4th ACM Conf. on Designing Interactive Systems (DIS 2002)*, London, UK, June 2002, 19-28.
- P.M. Aoki, R.E. Grinter, A. Hurst, M.H. Szymanski, J.D. Thornton, and A. Woodruff. "Sotto Voce: Exploring the Interplay of Conversation and Mobile Audio Spaces." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2002)*, Minneapolis, MN, Apr. 2002, 431-438.
- B. Suh, A. Woodruff, R. Rosenholtz, and A. Glass. "Popout Prism: Adding Perceptual Principles to Overview+Detail Document Interfaces." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2002)*, Minneapolis, MN, Apr. 2002, 251-258.
- R.E. Grinter and A. Woodruff. "Ears and Hair: What Headsets Will People Wear?" *Extended Abstracts, ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2002)*, Minneapolis, MN, Apr. 2002, 680-681.
- A. Woodruff, P.M. Aoki, R.E. Grinter, A. Hurst, M.H. Szymanski, and J.D. Thornton. "Eavesdropping on Electronic Guidebooks: Observing Learning Resources in Shared Listening Environments." *Proc. 6th International Conf. on Museums and the Web (MW 2002)*, Boston, MA, Apr. 2002, 21-30.
- A. Woodruff, R. Rosenholtz, J. Morrison, A. Faulring, and P. Pirolli. "A Comparison of the Use of Text Summaries, Plain Thumbnails, and Enhanced Thumbnails for Web Search Tasks." *Journal of the American Society for Information Science and Technology (JASIST)* 53(2):172-185, 2002.
- A. Woodruff, C. Olston, A. Aiken, M. Chu, V. Ercegovic, M. Lin, M. Spalding, and M. Stonebraker. "DataSplash: A Direct Manipulation Environment for Programming Semantic Zoom Visualizations of Tabular Data." *Journal of Visual Languages and Computing (JVLC)* 12(5):551-571, Oct. 2001.
- A. Woodruff, M.H. Szymanski, P.M. Aoki, and A. Hurst. "The Conversational Role of Electronic Guidebooks." *Proc. 3rd International Conf. on Ubiquitous Computing (UbiComp 2001)*, Atlanta, GA, Sep. 2001, 187-208.
- A. Woodruff, P.M. Aoki, A. Hurst, and M.H. Szymanski. "Electronic Guidebooks and Visitor Attention." *Proc. 6th International Cultural Heritage Informatics Meeting (ICHIM 2001)*, Milan, Italy, Sep. 2001, 437-454.
- A. Woodruff, A. Faulring, R. Rosenholtz, J. Morrison, and P. Pirolli. "Using Thumbnails to Search the Web." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2001)*, Seattle, WA, Apr. 2001, 198-205.
- A. Woodruff, P.M. Aoki, A. Hurst, and M.H. Szymanski. "The Guidebook, the Friend, and the Room: Visitor Experience in a Historic House." *Extended Abstracts, ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2001)*, Seattle, WA, Apr. 2001, 273-274.
- P.M. Aoki, A. Hurst, and A. Woodruff. "Tap Tips: Lightweight Discovery of Touchscreen Targets." *Extended Abstracts, ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2001)*, Seattle, WA, Apr. 2001, 237-238.
- C. Olston and A. Woodruff. "Getting Portals to Behave." *Proc. IEEE Symposium on Information Visualization (InfoVis 2000)*, Salt Lake City, UT, Oct. 2000, 15-25.
- P. M. Aoki and A. Woodruff. "Improving Electronic Guidebook Interfaces Using a Task-Oriented Design Approach." *Proc. 3rd ACM Conf. on Designing Interactive Systems (DIS 2000)*, New York, NY, Aug. 2000, 319-325.
- M. Baldonado, A. Woodruff, and A. Kuchinsky. "Guidelines for Using Multiple Views in Information Visualization." *Proc. 5th International Working Conf. on Advanced Visual Interfaces (AVI 2000)*, Palermo, Italy, May 2000, 110-119.
- A. Woodruff, R. Gossweiler, J. Pitkow, E.H. Chi, and S.K. Card. "Enhancing a Digital Book with a Reading Recommender." *Proc. ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI 2000)*, The Hague, The Netherlands, Apr. 2000, 153-160.

- A. Woodruff, J. Landay, and M. Stonebraker. "VIDA (Visual Information Density Adjuster)." *Extended Abstracts, ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI '99)*, Pittsburgh, PA, May 1999, pp. 19-20.
- A. Woodruff, J. Landay, and M. Stonebraker. "Constant Information Density Visualizations of Non-Uniform Distributions of Data." *Proc. 11th Annual ACM Symposium on User Interface and Software Technology (UIST '98)*, San Francisco, CA, Nov. 1998, 19-28.
- A. Woodruff, J. Landay, and M. Stonebraker. "Constant Information Density in Zoomable Interfaces." *Proc. 4th International Working Conf. on Advanced Visual Interfaces (AVI '98)*, L'Aquila, Italy, May 1998, 57-65.
- A. Woodruff, J. Landay, and M. Stonebraker. "Goal-Directed Zoom." *Summary, ACM SIGCHI Conf. on Human Factors in Computing Systems (CHI '98)*, Los Angeles, CA, Apr. 1998, 305-306.
- A. Woodruff and M. Stonebraker. "Supporting Fine-Grained Data Lineage in a Database Visualization Environment." *Proc. 13th International Conf. on Data Engineering (ICDE '97)*, Birmingham, UK, Apr. 1997, 91-102.
- A. Woodruff, P.M. Aoki, E. Brewer, P. Gauthier, and L.A. Rowe. "An Investigation of Documents on the World Wide Web." *Computer Networks and ISDN Systems* 28(7-11):963-980, May 1996.
- A. Aiken, J. Chen, M. Stonebraker, and A. Woodruff. "Tioga-2: A Direct Manipulation Database Visualization Environment." *Proc. 12th International Conf. on Data Engineering (ICDE '96)*, New Orleans, LA, Feb. 1996, 208-217.
- A. Aiken, J. Chen, M. Lin, M. Spalding, M. Stonebraker, and A. Woodruff. "The Tioga-2 Database Visualization Environment." *Proc. IEEE Visualization '95 Workshop on Database Issues for Data Visualization*, Atlanta, GA, Oct. 1995, 181-207.
- A. Woodruff and M. Stonebraker. "Buffering of Intermediate Results in Dataflow Diagrams." *Proc. 11th IEEE Symposium on Visual Languages (VL '95)*, Darmstadt, Germany, Sept. 1995, 187-194.
- A. Woodruff, A. Su, M. Stonebraker, C. Paxson, J. Chen, A. Aiken, P. Wisnovsky, and C. Taylor. "Navigation and Coordination Primitives for Multidimensional Browsers." *Proc. 3rd Conf. on Visual Database Systems (VDB '95)*, Lausanne, Switzerland, Mar. 1995, 360-371.
- A. Woodruff and C. Plaunt. "GIPSY: Automated Geographic Indexing of Text Documents." *Journal of the American Society for Information Science (JASIS)* 45(9):645-655, Oct. 1994.
- A. Woodruff, P. Wisnovsky, C. Taylor, A. Su, M. Stonebraker, C. Paxson, J. Chen, and A. Aiken. "Zooming and Tunneling in Tioga: Supporting Navigation in Multidimensional Space." *Proc. 10th IEEE Symposium on Visual Languages (VL '94)*, St. Louis, MO, Oct. 1994, 191-193.
- M. Farrens, A. Park, and A. Woodruff. "CCHIME: A Cache Coherent Hybrid Interconnected Memory Extension." *Proc. 6th International Parallel Processing Symposium*, Beverly Hills, CA, Mar. 1992, 573-577.
- M. Farrens, B. Wetmore, and A. Woodruff. "Alleviation of Tree Saturation in Multistage Interconnection Networks." *Proc. Supercomputing '91*, Albuquerque, NM, Nov. 1991, 400-409.

PROFESSIONAL ACTIVITIES

Allison is active in the professional community, frequently serving on program committees for CHI, CSCW, UbiComp, UIST, WWW, and other conferences. She also co-organizes workshops and special interest groups on topics such as sustainability. She recently served as a guest co-editor for an *IEEE Pervasive Special Issue on Sustainability*.

PATENTS

Allison is a co-inventor on 20 issued patents on topics such as computer-mediated communication, information visualization, and mobile user interfaces.

PRESS

Allison's work has been covered widely in the press, including the BBC and *The Economist*.

PERSONAL

Allison is a US citizen. She is an avid traveler and particularly enjoyed her trips to the Galapagos Islands and Antarctica.