

W E N D Y J U

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I apply interactive embedded systems technologies to the exploration and development of new interactive works. My particular expertise is in creating physical and digital interfaces that implicitly communicate with users; this knowledge has wide-reaching application in public installations and smart environments of all types. My research interests center on how to broaden the use and applications of interactive systems technologies to children, artists, and budding engineers.

E D U C A T I O N

- JUNE 2008 Stanford University, Stanford, CA
Ph.D. in Design, Mechanical Engineering
DISSERTATION: The Design of Implicit Interactions
COMMITTEE: Larry Leifer, Terry Winograd, Clifford Nass, Edward Carryer, Donald Norman, Scott Klemmer.
- AUGUST 2001 Massachusetts Institute of Technology, Cambridge, MA
M.S. Media Arts and Sciences
THESIS: The Design of Active Workspaces
COMMITTEE: Michael Hawley, Joseph Paradiso, Chee Pearlman (design consultant)
- JUNE 1997 Stanford University, Stanford, CA
B.S. with Distinction, Mechanical Engineering. TAU BETA PI.

T E A C H I N G E X P E R I E N C E

- FALL 2008 - PRESENT Assistant Professor
GRADUATE PROGRAM IN DESIGN, California College of the Arts
Teach original studio design courses in interaction design & advise thesis work for trans-disciplinary master's program in design. Act as technical liaison with Education Technology Services and advisor for future interaction design lab.
- SPRING 2010, 2011, 2012 Instructor
EE47. INTERACTIVE DEVICE DESIGN, Stanford Electrical Engineering
Designed new course to expose undergraduate students to the various human-centered and technical aspects of designing interactive devices with embedded controllers, digital displays and electronic sensors and actuators, culminating in the final project where students design their own MP3 players.
- WINTER 2012 Instructor
EE92A. MAKING AND BREAKING THINGS, Stanford Electrical Engineering
Created new "hands-on" seminar course to encourage a maker culture in the Electrical Engineering department at Stanford. Weekly guest speakers guide students through short projects or product dissections. With David Sirkin.

- FALL 2009, 2010, 2011 Instructor
 FALL-WINTER 2008-09 *MUSIC250A&B Physical Interaction Design, Stanford CCRMA*
 Guide graduate students in employing embedded controllers and sensor technology to create new musical controllers for Stanford's Center for Computer Research in Music and Acoustics. Developing new platforms to allow novel autonomous new musical instruments. With Edgar Berdahl.
- JULY 2005, JUNE 2009-10 *CCRMA SUMMER WORKSHOP Physical Interaction Design, Stanford*
 Instruct diverse students in basic electronics, embedded development and patch programming to create new musical controllers. Lecture, design daily labs, coach projects. With Matthew Wright (2005) and Edgar Berdahl (2009).
- WINTER 2008, 2009 Co-Instructor
ENGR231 Transformative Design, Stanford d.school
 Designed new advanced graduate course focused on recognizing and harnessing social, cultural and behavioral factors in design for health, conservation & safety. Co-teach class with Bernard Roth, Sarah Lochlann Jain & Bill Moggridge.
- SPRING 2008 Instructor
IEOR170 Industrial Design & Human Factors, UC Berkeley
 Lead survey course on industrial design & human factors. Class featured lectures, historical & contemporary case studies, design exercises and a major design project.

RESEARCH ACTIVITY

- SEPTEMBER 2009 – PRESENT Post-doctoral Researcher, Computer Science
Stanford University, Stanford, CA
 Research the use of embedded technologies in game controllers as data acquisition tools to promote scientific inquiry in K-12 education. Collaboration with Sodertörn University and Nueva School in Hillsborough. PI: Terry Winograd.
- SEPTEMBER 2008 – AUGUST 2010 Post-doctoral Researcher, Center for Design Research
Stanford University, Stanford, CA
 Research creating robots for mediating distance collaboration and physical actuation in information kiosks. PI: Mark Cutkosky.
- SEPTEMBER 2001 – JUNE 2008 Research Assistant, Center for Design Research
Stanford University, Stanford, CA
 Research projects included embedded health assessment in cars, design and development of collaborative workspace capture systems and controlled experimental research on interactive agents in education. Collaboration with NASA Ames, Xerox PARC, Fakespace Labs, KTH (Sweden), Kyoto University, Intel & HPI Potsdam.
- JUNE 1999 – AUGUST 2001 Research Assistant, MIT Media Laboratory
Massachusetts Institute of Technology, Cambridge, MA
 Investigated the use of computer and sensing technologies for assisting human work in the physical domain. Collaborated with Motorola, Merloni Domesticii (Italy), & Kraft Foods.

PROFESSIONAL ACTIVITY

- CURRENTLY Interaction Designer
 Developing interactive robots and audience sensing technologies for interactive exhibit about the Burgess Shale to be exhibited at the Beall Center for Art +

Technology at UC Irvine in January 2013. Collaborating with Gail Wight and Rhonda Holbertson from Stanford University.

- FALL 2006 – FALL 2010 Editor-at-Large
WINTER 2005 – Founder & Editor-in-Chief
SUMMER 2006 *Ambidextrous Magazine, Stanford, CA*
Founded quarterly cross-disciplinary, cross-market print magazine for Stanford d.school, and Center for Design Research to create forum for the academic and professional design community. [magazine currently on hiatus]
- AY 2002-2004 Editor-in-Chief & Coordinator
SUMMER 2002 Reporter
ACM SIGGRAPH Reporters Program
Supervised program for corps of six student reporters to canvass ACM SIGGRAPH conference for online publication. Introduced real-time conference report posting.

INDUSTRY EXPERIENCE

- FALL 2009 - PRESENT Willow Garage, Menlo Park, CA
Research & Development Consultant
Conducting controlled online and laboratory experiments to better design human-robot interactions. Acting as consigliere for product design development of home robot product.
- SUMMER 2005 Intel Corporation, Portland, OR
Intern, Digital Health Group
Developed and prototyped networked mobile phone application on Series60 Nokia to capture and remotely log pulse rate information from Bluetooth device.
- SUMMER 2002 Motorola, Inc., Mountain View, CA
Research Intern, Silicon Valley Research Center
Developed design for handheld device with embedded sensors to infer user location.
- SUMMER 2000 Motorola, Inc., Cambridge, MA
Consultant, Cambridge Research Center
Developed interface, mechanical design of a wireless handheld Linux server.
- JUNE 1997 – Silicon Graphics, Inc., Mountain View, CA
JUNE 1999 *Product Design Engineer, Advanced Systems Division*
Designed embedded system controller infrastructure to help technicians diagnose, service, and maintain Origin 2000 scalable servers.

PUBLICATIONS

- JOURNAL PAPERS Berdahl, E., Ju, W., Smith J.O. (2010). Homemade Digital Instruments. *The Journal of the Acoustical Society of America*, 127 (3), March 2010.
- Ju, W., & Leifer, L. (2008). The Design of Implicit Interactions: Making Interactive Objects Less Obnoxious. *Design Issues: Special Issue on Design Research in Interaction Design*, 24(3), Summer 2008, 72-84.
- Ju, W., & Takayama, L. (2009). Approachability: How People Interpret Automatic Door Movement as Gesture. *International Journal of Design, Special Issue on Design & Emotion*, Vol. 3(2), August 2009.

CONFERENCE PAPERS
(REFEREED)

Linder, J. & Ju, W. (2012) Playable Character: Extending Digital Games into the Real World. To be published in Human Factors in Computing Systems (CHI 2012). Austin, TX.

Sirkin, D. & Ju, W. (2012) Consistency in Physical and On-screen Action Improves Perceptions of Telepresence Robots. To be published in Human Robot Interactions (HRI 2012), Boston, MA.

Lewis, S., & Ju, W. (2012) Using Low Cost Game Controllers to Capture Data for 6th Grade Science Labs. To be published in Proceedings of Computer Supported Cooperative Work (CSCW 2012), Seattle WA.

Ju, W. & Takayama, L. (2011) Should Robots or People Do These Jobs? A Survey of Robotics Experts and Non-Experts About Which Jobs Robots Should Do. To be published in Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2011), San Francisco CA.

Berdahl, E. & Ju, W. (2011) Satellite CCRMA: A Musical Interaction and Sound Synthesis Platform. Proceedings of New Instruments for Musical Expression (NIME 2011), Oslo, Finland.

Takayama, L., Dooley, D. & Ju, W. (2011) Expressing thought: Improving readability of robot actions with animation principles. Proceedings of Human-Robot Interaction Conference (HRI 2011) Lausanne, Switzerland.

Mickelson, J. & Ju, W. (2011) Math Propulsion: Engaging Math Learners Through Embodied Performance & Visualization. Proceedings of Tangible, Embedded and Embodied Interaction (TEI 2011), Madiera, Portugal.

Ju, W., Sirkin, D. (2010) Animate Objects: How Physical Motion Encourages Public Interaction. In Persuasive Technology, June 7-10, 2010. Copenhagen, Denmark, 40-51.

Ju, W., Lee, B., & Klemmer, S. (2008) Range: Exploring Implicit Interaction through Electronic Whiteboard Design. In Proceedings of Computer Supported Cooperative Work (CSCW '08), 17-26.

Takayama, L., Ju, W. & Nass, C. (2008). Beyond Dirty, Dangerous and Dull: What Everyday People Think Robots Should Do. In Proceedings of Conference on Human Robot Interactions (HRI '08).

Ju, W., Lee, B.A., & Klemmer, S.R. (2007). Range: Exploring Proxemics in Collaborative Whiteboard Interaction. In Extended Abstracts on Human Factors in Computing Systems (CHI '07), San Jose CA.

Klemmer, S. R., Verplank, B., & Ju, W. (2005). Teaching embodied interaction design practice. In Proceedings of the 2005 conference on Designing for User eXperience (DUX '05), San Francisco CA, 26-34.

Ju, W., Nickell, S., Eng, K., & Nass, C. (2005). Influence of colearner agent behavior on learner performance and attitudes. In Extended Abstracts on Human Factors in Computing Systems (CHI '05), Portland OR, USA, 1509-1512.

Ju, W., Ionescu, A., Neeley, L., & Winograd, T. (2004). Where the wild things work: capturing shared physical design workspaces. In Proceedings of the 2004 ACM Conference on Computer Supported Cooperative Work (CSCW '04), Chicago, Illinois, USA, 533-541.

Ju, W., Madsen, S., Fiene, J., Bolas, M., McDowall, I., Faste, R. (2003) Interaction Devices for Hands-on Desktop Design. In Proceedings of SPIE/IS&T Vol 5006. Conference on The Engineering Reality of Virtual Reality. Santa Clara CA, 585-595.

Ju, W., Bonanni, L., Fletcher, R., Hurwitz, R., Judd, T., Post, R., Reynolds, M., Yoon, J. (2002). Origami Desk: integrating technological innovation and human-centric design. In Proceedings of the conference on Designing Interactive Systems (DIS '02) London, England, 399-405.

Ju, W., Hurwitz, R., Judd, T., & Lee, B. (2001). CounterActive: an interactive cookbook for the kitchen counter. In Extended Abstracts on Human Factors in Computing Systems (CHI '01), Seattle, Washington, 269-270.

Dobson, K., boyd, d., Ju, W., Donath, J., & Ishii, H. (2001). Creating visceral personal and social interactions in mediated spaces. In Extended Abstracts on Human Factors in Computing Systems (CHI '01), Seattle WA, 151-152.

CHAPTERS Dow, S., Ju, W., Mackay, W. (In press, 2012). Projection, Place and Point-of-View in Research through Design. In Jewitt, C., Price, S., and Brown, B. (Eds.), *The SAGE Handbook of Digital Technology Research*. London UK: SAGE.

Ju, W. (2008). The mouse, the demo & the big idea. In T. Erickson and D. McDonald (Eds.), *HCI Remixed*. Cambridge MA: MIT Press.

CONFERENCE PAPERS (NON-REFEREED) Ju, W., Oehlberg, L., Leifer, L. (2004). Project-based learning for experimental design research. In Proceedings of International Education and Product Design Education Conference, Delft, The Netherlands.

Leifer, L., Culpepper, J., Ju, W., Cannon, D.M., Eris, O., Liang, T., Bell, D., Bier, E.A., Pier, K. (2002). Measuring the performance of online distributed team innovation (learning) services," In *Proceedings of e-Technologies in Engineering Education*. Davos, Switzerland.

PANELS, DEMOS POSTERS & EXHIBITS Niedlinger, K. & Ju, W. (2011) SENSOREE Therapeutic Bio.media, Demonstration at International Symposium on Wearable Computers, June 12-15, 2011, San Francisco, CA.

Martin, A & Ju, W. (2010) Bloom: An Interactive, Organic Visualization of Email Inbox Task Management. In *SIGGRAPH '10 Extended Abstracts of ACM Conference on Computer Graphics & Interaction Techniques*, Los Angeles, CA, Article A33.

McPherson, T. (Moderator), Balsamo, A., Ju, W., & Century, M., panelists. (2010) "Design". Online panel discussion for HASTAC, July 28, 2010.

Rojas, I, & Ju, W. (2009) Visualization & Empowerment. In *Creativity & Cognition '09 Extended Abstracts of ACM Conference on Creativity & Cognition*, Berkeley, CA, 401-2.

Ju, W., Panel Organizer. (2004) Trading design spaces: exchanging ideas on physical design environments. Margot Brereton, Michael Haller, Amanda Parkes, Scott Klemmer, Brian Lee, Dan Rosenfeld, panelists. In *CHI '04 Extended Abstracts on Human Factors in Computing Systems*, Vienna, Austria, 1582-1583.

Ju, W. (2002) Hands-On Interactive Demo: Origami Desk. At *CHI '02 Conference on Computer-Human Interactions*, April 20-25, 2002, Minneapolis MN.

Special Exhibit: Origami Desk. (2002) Boston Museum of Science. March 24-31.

Mountford, S Joy, Panel organizer. (2002) Can we learn anything about the process of UI design? Sally Grisedale, Jan-Christoph Zoels, Ramia Mazé, Monica Bueno, Wendy Ju, panelists. In *DIS '02 Proceedings of the Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques*, London, England, 26-31.

Ju, W., Bonanni, L., Fletcher, R., Hurwitz, R., Judd, T., Post, E.R., Reynolds, M., Yoon, J. (2001) Emerging Technologies Exhibit: Origami Desk. In *SIGGRAPH 2001, Extended Abstracts for Conference on Computer Graphics and Interactive Techniques*. August 2001. Los Angeles CA, 130.

WORKSHOP PAPERS
& PRESENTATIONS

Ju, W. (2011) Other people's bodies: Communicative Aspects of Embodied Interaction. Position paper for Workshop on Embodied Interaction, CHI 2011 April 2011, Vancouver, Canada.

Ju, W. (2010) Designing Implicit Interactions. Invited speaker for Device Design Day 2010, San Francisco CA.

Ju, W., Sirkin, D. (2010) Physicality Matters. Position paper for Workshop on New Frontiers in Telepresence, CSCW 2010, February 2010, Savannah GA.

Holmquist, L.E., Ju, W., Jonsson, M., Tholander, J. Ahmet, Z., Sumon, S.I., Acholonu, U., Winograd, T. (2010) Wii Science: Teaching the laws of nature with physically engaging video game technologies. CHI 2010, April 2010, Atlanta GA.

Ju, W. (2009) Fold a cloth diaper. Position paper for DIY for CHI, CHI 2009, Boston MA.

Ju, W. (2007) Design, Design & Design: An overview of Stanford's Center for Design Research. Position paper for Workshop on Exploring Design as a Research Activity, CHI 2007, April 2007, San Jose CA.

Ju, W. (2006) Drawn Together. Invited presentation & position paper for Workshop on Sketching Nurturing Creativity, CHI 2006, April 2006, Montreal, Canada.

Ju, W. (2005) CardioCar: Embedded Assessment on the Go. Invited presentation for Workshop on HCI challenges in Health Assessment, CHI 2005, April 2005, Portland OR.

Ju, W., Oehlberg, L. (2004) The iX experience: Project-based Learning in HCI Design. Position paper for Workshop on Exploring the Relationship between Design and HCI, CHI 2004, Vienna, Austria.

Ju, W., Culpepper, J. (2004) Self-organizing Documentation Capture and Retrieval for Robotic Teleoperations Support. In Abstracts of Habitation 2004, January 2004, Orlando FL, 173-4.

Ju, W. (2002) Origami Desk: Integrating Technological Innovation and Human-centric Design. Position paper for Look Mama, with Hands! Research Workshop, DIS '02. June 25, 2002, London UK.

RECOGNITION

HONORS & AWARDS Intel Foundation PhD Fellowship, Stanford University, AY 2005 - 2007

First Prize, Motorola "Big Idea" Competition, for design of "HitchHiker's Guide" a network connected and context-aware electronic guidebook. *With Thai Tran.* Stanford University, SPRING 2002

McDonald's Fellowship, MIT Media Lab, FALL 2000.

Best Prototype, Interval Research Design Competition. SUMMER 1997

TAU BETA PI, Stanford University, AY 1994-1997

National Merit Scholar, 1993

SELECTED PRESS Tina Barseghian, "What Do Wii Remotes Have to Do with Science? Ask Sixth-Graders," Online article, *KQED MindShift*. <http://mindshift.kqed.org/2011/11/what-do-wii-remotes-have-to-do-with-science-ask-sixth-graders/>

Ben Fullerton, "Kicker Studio's Inaugural Device Design Day Conference," *Core 77*. http://www.core77.com/blog/events/a_day_at_the_museum_kicker_studios_inaugural_device_design_day_conference__17326.asp

Kicker Studio, "Six Questions from Kicker: Wendy Ju," Interview for Blog. <http://www.kickerstudio.com/blog/2010/07/six-questions-from-kicker-wendy-ju/>

Winterhouse Institute, "Volume One. Number One." *Below the Fold*, Vol.1(1) Spring 2006, p. 5.

Mary Fichter. "Ambidextrous Design." *STEP Inside Design*. Vol 22(2) March/April 2006, p. 25.

Food Network. "Kitchens of the Future." Special Feature. Airdate January 18, 2004.

Genevieve Bell & Joseph Kaye. "Designing technology for domestic spaces: A Kitchen Manifesto." *Gastronomica*, Spring 2002, p. 46-62.

Ogama Kenji. "Origami Desk" (in Japanese), in Digital Stadium, Documentary broadcast on NHK (Japan Broadcasting Corporation), Airdate September 22 (#63) & 29 (#64), 2001.

Staff. "Pengachu." *FRAMES (MIT Media Lab)*, February 2001, No.102, p. 2.

Staff. "Counter Intelligence." *FRAMES*, January 2000, No. 93, p. 2.

David Colker. "Culinary Curiosities/How video-projected recipes and dinner-table screens may help bring households together" *Los Angeles Times*, November 8th 2000. p. C-14.

Lee Ridgway. "Counter Intelligence Cooks up Technology for the Kitchen." *MIT Information Services & Technology*, Vol.15(6) July/August 2000. p. 1.

Richard Wolkomir. "Will the Kitchen Please Shut Up!" *Smithsonian Magazine*, Vol.30(6) September 1999, p. 56-69.

OTHER PROFESSIONAL ACTIVITY

- SERVICE ACM HRI 2012 (Human Robot Interactions) Video Program Co-chair
ACM CSCW 2012 (Computer Supported Cooperative Work) Conference Committee – Associate Chair for Papers and Notes & Final Program Co-chair
ACM CHI 2011 & CHI 2012 (Conference on Human Factors in Computing Systems) – Associate Chair for Papers and Notes
ACM SIGGRAPH 2010 (International Conference on Computer Graphics and Interactive Techniques) Unified Jury Member
ACM SIGGRAPH 2009 Interactive Music Special Projects Coordinator
ACM DUX 2007 (Designing User eXperiences) Student Volunteer Coordinator
ACM SIGGRAPH 2005 – 2007 Sketches Committee
ACM CHI 2007 (Conference on Human Factors in Computing Systems) Technical Program Committee, Student Volunteer
NEEDS Premier Award for Excellence in Engineering Education, Member of judging panel, 2002-2003
Peer Reviewer for:
NSF Human Robot Interactions Program, International Journal of Design, Journal of Human Robot Interactions, ACM CHI, ACM HRI (Human Robot Interactions), ACM CSCW (Computer Supported Cooperative Work), ACM UIST (Symposium on User Interface Software and Technology) & ACM SIGGRAPH.
- ASSOCIATIONS American Society of Mechanical Engineers
Association of Computer Machinery
Industrial Design Society of America