

Scott D. Mainwaring, Ph.D.

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Seattle, WA 98103

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EDUCATION

Stanford University

Ph.D. in Cognitive Psychology (field designation: Cognitive Science), 1994
Dissertation: *Reference Points and the Structure of Cognitive Maps* (Barbara Tversky, adv.)

Harvard University

A.B. in Computer Science, 1985

EMPLOYMENT

2014-present Independent Researcher and Lecturer, Portland, OR and Seattle, WA

Focus on financial UX, collaboration, and human-centered innovation. Topics have included nation-level e-government services, block chain adoption, crowd investing, organizational turnover, and empathy in design thinking.

2016-2017 Adjunct Assistant Professor, Portland State University, Portland, OR

Taught graduate-level course on User Centered Innovation (Engineering and Technology Management 556/656), Winter 2017.

2012-2013 Co-PI, Intel Science and Technology Center (ISTC) for Social Computing, Hillsboro, OR and Irvine, CA

Defined, launched, and directed a multidisciplinary distributed research center exploring the social and cultural construction of information and communication technologies and new media. The ISTC had a \$2.5 million annual budget and tied together 21 faculty, 6 postdocs, and 22 doctoral students in Informatics, Anthropology, Media Studies, and other disciplines across UC Irvine (the center's hub), Indiana University, Cornell University, Georgia Tech, and NYU. Worked with academic and Intel stakeholders to define and communicate an ambitious set of research themes to foster collaboration within and across campuses and to represent the center's work externally. Facilitated conversations between Intel researchers and center faculty and students through reports, blogs, and site visits, and by creating a structure of Intel sponsors for the ISTC themes. Created online and face-to-face venues for graduate students to present work-in-progress and build community. Managed relations with sibling ISTCs, particularly the ISTC for Pervasive Computing centered at University of Washington. Co-organized the center's first annual all-hands working meeting to review first year and plan second year activities. Oversaw operations, working closely with co-PIs at UC Irvine and co-chairing biweekly coordination teleconferences.

2005-2006 Acting Director, People and Practices Research Group (PaPR), Intel Corp., Hillsboro, OR

Responsible for day-to-day operations for 12-month period. Managed six direct reports. Conducted candidate searches for two research scientist positions, and aided in search for permanent lab director. Helped establish and oversee contracts with external faculty as consultants and research collaborators. Reported on research findings and activities on monthly basis to Intel stakeholders; represented PaPR at annual program review in Intel Labs.

2002-2013 Senior Research Scientist, Intel Corp., Hillsboro, OR

Lead research projects on large-scale broadband adoption, resistance to ubiquitous infrastructure, home architecture and within-home mobility, digital wallets and urban mobility, personal digital money and mobile money innovation, and social forces in ICT-based development projects. Conducted fieldwork in the US, UK, Japan, China, South Korea, Morocco, Kenya, and South Africa. Coordinated multiyear Research Council program supporting academics exploring community technologies, privacy, and trust. Collaborated across research labs and business units to produce corporate-level strategy and planning documents, and conduct joint research. Co-organized workshops at Intel, UC Irvine, and the CHI and Ubicomp conferences on a range of topics. Participated in the annual Intel Developer Forum, co-teaching a tutorial on mobile ethnography, presenting research on the future of payment systems and virtual currencies, and helping stage a large-scale participatory demo of augmented reality applied to personal photography. Generated product concepts, invention disclosures, and patents. Helped in formation of agenda-setting research themes tying together PaPR and other units of Intel Research. Supervised PhD candidates in internship projects on forms of mobility (separate projects looked at residential, urban, and vehicular mobility) and on online gaming culture and currencies in China, some resulting in publications at CHI.

2000-2002 Research Scientist, Intel Corp., Hillsboro, OR

Lead research projects on broadband connected homes, personal digital media, and home media server field trials (in collaboration with internet service provider AT&T Broadband). Collaborated with market researchers, designers, and engineers to provide user experience guidance on product and service concepts and strategies.

1994-2000 Member, Research Staff, Interval Research Corp., Palo Alto, CA

Research foci included online communities, information appliances, home media spaces, demographic opportunities around aging Baby Boomers, and interactive television services. Awarded patents on shared media-space systems. Served on internal institutional review board for human studies.

1991-1993 Program Coordinator, Symbolic Systems Program (SSP), Stanford

Responsible for day-to-day operations for interdisciplinary undergraduate major in cognitive science, a collaboration between the Philosophy, Linguistics, Psychology, and Computer Science departments. Organized faculty participation in senior

colloquium series. Planned and participated in the SSP commencement ceremony. Supervised peer student advisor program, and helped facilitate their annual Distinguished Invited Speaker event. Tracked and verified student progress towards meeting degree requirements.

1985-1987 Software Engineer, Encore Computer Corporation, Marlboro, MA

Unix application development and testing on a novel shared-memory multi-processor architecture. Ported Franz Lisp and Common Lisp compilers to NS32000 architecture.

1981-1985 Researcher and Software Engineer, BBN Computer Corp., Cambridge, MA

Participant observation of ARPANet operations center staff to document procedures. (The ARPANet was the precursor to the Internet.) Contributed to software design and development team working on network monitoring and control applications for network operation centers used in early stages of the Internet.

PUBLICATIONS

Research Papers

- Shklovski, I., Mainwaring, S.D., Hrunn Skúladóttir, H., and Borgthorsson, H. 2014. **Leakiness and creepiness in app space: Perceptions of pivacy and mobile app use.** In *Proc. ACM Conf. Human Factors in Computing Systems* (Toronto, Canada). CHI 2014.
- Dourish, P. and Mainwaring, S.D. 2012. **UbiComp's colonial impulse.** In *Proc. Ubiquitous Computing Conf.* (Pittsburgh, PA). UbiComp 2012, 133-142.
- Maurer, B. and Mainwaring, S.D. 2012. **Anthropology with business: Plural programs and future financial worlds.** *Journal of Business Anthropology*, 1(2), 177-196.
- Kuriyan, R., Nafus, D., and Mainwaring, S. 2012. **Consumption, technology, and development: The "poor" as "consumer".** *Information Technologies & International Development*, 8(1), 1-12.
- Kuriyan, R., Kitner, K., Mainwaring, S., and Nafus, D. 2011. **Cracking representations of the emerging markets: It's not just about affordability.** In *Proc. Ethnographic Praxis in Industry Conf.* (Boulder, CO). EPIC 2011, 322-336.
- Nafus, D. and Mainwaring, S. 2010. **Rural broadband expansion in the United States: Citizen perception as a social process.** In *Proc. Telecommunications Policy Research Conf.* (Washington, DC). TRPC 2010.
- Nafus, D., De Paula, R., Kitner, K., Kuriyan, R., and Mainwaring, S. 2009. **Consumerization and renewing People and Practices Research.** In *Proc. Ethnographic Praxis in Industry Conf.* (Chicago, IL). EPIC 2009, 256-267.
- Lindtner, S., Mainwaring, S.D., Dourish, P., and Wang, Y. 2009. **Situating productive play: Online gaming practices and guanxi in China.** In *Proc. IFIP Conf. Human-Computer Interaction* (Stockholm, Sweden). INTERACT '09, 328-341.
- Mainwaring, S.D., March, W., and Maurer, B. 2008. **From meiwaku to tokushita!: Lessons for digital money design from Japan.** In *Proc. ACM Conf. Human Factors in Computing Systems* (Florence, Italy). CHI 2008, 21-24. [Best paper/note award]

- Wang, Y. and Mainwaring, S.D. 2008. **“Human-Currency Interaction”**: learning from virtual currency use in China. In *Proc. ACM Conf. Human Factors in Computing Systems* (Florence, Italy). CHI 2008, 25–28.
- Lindtner, S., Nardi, B., Wang, Y., Mainwaring, S., Jing, H., and Liang, W. 2008. **A hybrid cultural ecology: World of Warcraft in China**. In *Proc. ACM Conf. Computer Supported Cooperative Work* (San Diego, CA). CSCW 2008, 371–382.
- Brewer, J., Mainwaring, S., and Dourish, P. 2008. **Aesthetic journeys**. In *Proc. ACM Conf. Designing Interactive Systems* (Cape Town, South Africa). DIS 2008, 333–341.
- Bassoli, A., Brewer, J., Martin, K., Dourish, P., and Mainwaring, S. 2007. **Underground aesthetics: Rethinking urban computing**. *IEEE Pervasive Computing*, 6(3), 39–45.
- Woodruff, A., Anderson, K., Mainwaring, S.D., and Aipperspach, R. 2007. **Portable, but not mobile: A study of wireless laptops in the home**. In *Proc. Pervasive Computing Conf.* (Toronto, Canada). Pervasive 2007, 216-233.
- Mainwaring, S.D., Anderson, K., and Chang, M.F. 2005. **Living for the global city: Mobile kits, urban interfaces, and ubicomp**. In *Proc. Ubiquitous Computing Conf.* (Tokyo, Japan). Ubicomp 2005, 269-286.
- Mainwaring, S.D. and Woodruff, A. 2005. **Investigating mobility, technology, and space in homes, starting with “great rooms”**. In *Proc. Ethnographic Praxis in Industry Conf.* (Redmond, WA). EPIC 2005, 188-195.
- Shklovski, I. A. and Mainwaring, S. D. 2005. **Exploring technology adoption and use through the lens of residential mobility**. In *Proc. ACM Conf. Human Factors in Computing Systems* (Portland, OR). CHI 2005, 621-630.
- Mainwaring, S.D., Anderson, K., and Chang, M.F. 2005. **What’s in your wallet?: Implications for global e-wallet design**. In *Extended Abstracts on Human Factors in Computing Systems* (Portland, OR). CHI EA 2005, 1613-1616.
- Beckwith, R. and Mainwaring, S. 2005. **Privacy: Personal information, threats, and technologies**. In *Proc. Intl. Symposium on Technology and Society* (Los Angeles, CA). ISTAS 2005, 9-16.
- Mainwaring, S.D., Anderson, K., and Chang, M.F. 2004. **Infrastructures and their discontents: Implications for ubicomp**. In *Proc. Ubiquitous Computing Conf.* (Nottingham, UK). Ubicomp 2004, 418-432.
- Sherry, J., Mainwaring, S.D., Burrell, J., Beckwith, R., and Salvador, T. 2004. **“This all together, hon’?”: Ubicomp in non-office work environments**. *Proc. Ubiquitous Computing Conf.* (Nottingham, UK). Ubicomp 2004, 179-195.
- Mainwaring, S.D., Tversky, B., Ohgishi, M., and Schiano, D. J. 2003. **Descriptions of simple spatial scenes in English and Japanese**. *Spatial Cognition and Computation*, 3, 3-42.
- Hindus, D., Mainwaring, S.D., Leduc, N., Hagström, A.E., and Bayley, O. 2001. **Casablanca: designing social communication devices for the home**. In *Proc. ACM Conf. Human Factors in Computing Systems* (Seattle, WA). CHI 2001, 325-332.
- Tversky, B., Lee, P., and Mainwaring, S. 1999. **Why do speakers mix perspectives?** *Spatial Cognition and Computation*, 1, 399-412.

- Ackerman, M.S., Starr, B., Hindus, D., and Mainwaring, S.D. 1997. **Hanging on the 'wire: a field study of an audio-only media space.** *ACM Transactions on Computer-Human Interaction*, 4, 39-66.
- Hindus, D., Ackerman, M.S., Mainwaring, S., and Starr, B. 1996. **Thunderwire: A field study of an audio-only media space.** In *Proc. ACM Conf. Computer Supported Cooperative Work* (Boston, MA). CSCW 1996, 238-247.
- Mainwaring, S.D. 1996. **Compilation and use of a World-Wide Web index of cognitive and psychological science resources.** *Behavior Research Methods, Instruments, & Computers*, 28, 152-155.

Other publications:

- Mainwaring, S.D. 2017. **Dongles.** In W.M. Maurer & L. Swartz (Eds.), *Paid: Tales of Dongles, Checks, and Other Money Stuff*. MIT Press.
- Mainwaring, S.D. and Lee, C.P. 2017. **Turnover and the Model of Coordinated Action (MoCA)** [poster]. In *CSCW '17 Companion* (Portland, OR). CSCW 2017.
- Kuriyan, R., Kitner, K., Mainwaring, S., and Nafus, D. 2010. **Reassessing ICTs and Development: The Social Forces of Consumption.** Research report released at 2010 World Congress on Information Technology (Amsterdam). WCIT 2010.
- Mainwaring, S. 2010. **Real money and its alternatives.** In Cliver, M. (Ed.) *New Organizational Models: Open-Source Financial Services Research* (pp. 42-43). Released at Ethnographic Praxis in Industry Conference (Tokyo). EPIC 2010.
- Wang, Y. and Mainwaring, S. 2010. **Incentives in the wild: Leveraging virtual currency to sustain online community.** In *Proc. iConference 2010*.
- Maurer, W.M. and Mainwaring, S.D. 2009. **The value of mobile banking, models, and methods: Can you hear me now?** Paper delivered at the 108th Annual Meeting of the American Anthropological Association, Philadelphia, PA, December 3, 2009.
- Mainwaring, S.D. and George, C. 2008. **Navigating future moneyscapes** (video and booklet). Distributed at the Intel Technology and Research Pavilion, Technology Showcase, Intel Developers Forum (San Francisco, 19-21 August, 2008).
- Wang, Y. and Mainwaring, S.D. 2008. **Ethnography at play: An exploratory case study of Chinese users' experience in and around online games.** Paper presented at CHI 2008 Workshop on Evaluating User Experiences in Games.
- Lindtner, S., Mainwaring, S., and Wang, Y. 2008. **New frontier of guanxi: Online gaming practices in China.** Available at SSRN 1317472.
- Ackerman, M. and Mainwaring, S.D. 2005. **Privacy issues and human-computer interaction.** *Computer*, 27(5), 19-26. (Also appears in Cranor, L.F. and Garfinkel, S. (Eds.) *Security and Usability: Designing Secure Systems That People Can Use* (Ch. 19, pp. 381-400). O'Reilly Media, 2005.)
- Woodruff, A. and Mainwaring, S. 2005. **Everyday practices in great rooms.** Paper presented at Ubicomp 2005 Workshop: Situating Ubiquitous Computing in Everyday Life; Bridging the Social and Technical Divide.
- Okabe, D., Anderson, K., Ito, M., and Mainwaring, S.D. 2005. **Location-based moblogging as method: New views into the use and practice of persona, social, and mobile**

technologies. Paper presented at the Hungarian Academy of Science conference: *Seeing, Understanding, Learning in the Mobile Age, the 2005 Intl. Conf.* (Budapest, Hungary).

Anderson, K., Chang, M., and Mainwaring, S. 2004. Device ensembles. *Computer*, 37(12), 58-61.

Mainwaring, S.D., Tversky, B., and Schiano, D. 1996. Effects of task and object configurations on perspective choice in spatial descriptions. AAI Spring Symposium, 56-67.

Mainwaring, S.D. 1993. Distinguishing the linguistic from the sublinguistic and the objective from the configurational. *Behavioral and Brain Sciences*, 16, 248-249. Commentary on target article by B. Landau and R. Jackendoff, "What" and "where" in spatial language and spatial cognition.

Kosslyn, S.M., Mainwaring, S.D., & Corcoran, T.A. 1985. Connectionism: There's something to it. *Behavioral and Brain Sciences*, 8, 297. Commentary on target article by J.A. Feldman, Four frames suffice: A provisional model of vision and space.

COURSES TAUGHT

User Centered Innovation (graduate level). Engineering and Technology Management 556/656, Maseeh College of Engineering and Computer Science, Portland State University, Portland, OR. Winter 2017.

Dealing with People Coming and Going: Turnover in Coordinated Action (undergraduate Directed Research Group with Charlotte Lee). Human Centered Design and Engineering 496, College of Engineering, University of Washington, Seattle, WA. Fall 2016.

WORKSHOPS ORGANIZED

Maurer, W. and Mainwaring, S.D. 2008. **Everyday Digital Money**. Two-day workshop at UC Irvine, sponsored by UC Irvine Dept. of Anthropology and People and Practices Research at Intel.

Elliott, A., Mainwaring, S., Sengers, P., and Woodruff, A. 2006. **Nurturing Technologies in the Domestic Environment: Feeling Comforted, Cared for, and Connected at Home**. Workshop at ACM Ubicomp 2006 (Orange County, CA).

Acquisti, A., Canny, J., Hong, J., Langheinrich, S., and Mainwaring, S.D. 2005. Ubicomp Privacy: Privacy in Context. Workshop at ACM Ubicomp 2005 (Tokyo, Japan).

Canny, P., Dourish, P., Mainwaring, S., and Jiang, X. 2003. Ubicomp Communities: Privacy as Boundary Negotiation. Workshop at ACM Ubicomp 2003 (Seattle, WA).

Mainwaring, S.D., O'Brien, J., Hughes, J.A., and Lutters, W.G. 1997. Computer Support for Home Life: CSCW & Domestic Environments. Workshop at ECSCW 1997 (Lancaster, UK).

WORKSHOP PAPERS

- Mainwaring, S.D. 2014. Monetary aesthetics and HCI. In *#CHIMoney: Financial Interactions, Digital Cash, Capital Exchange and Mobile Money*. Workshop at CHI 2014 (Toronto, Canada).
- Mainwaring, S.D. 2012. From Casablanca to Consumerization: Reflections on “Technology for Families” Research. In *Technology for Today's Family*. Workshop at CHI 2012 (Austin, Texas).
- Lindtner, S., Mainwaring, S.D., and Anderson, K. 2009. Facing the Crowd: Cocooning and Leveling Up in China's Urban Sprawls. In *Crowd Computer Interaction*. Workshop at CHI 2009 (Boston, MA).

TALKS

- Designing Policies and Regions*. Human Computer Interaction Consortium, Pajaro Dunes, CA, June 27, 2017.
- Human-Centered Computing for the 21st Century* (Invited keynote). International Conference on Human-Centered Computing (HCC 2014), Phnom Penh, November 28, 2014.
- HCI's Evolving Relationships to Data*. Human Computer Interaction Consortium, Asilomar, CA, October 24, 2013.
- Datafication, Formalization, and Empowerment*. Claro Partners Symposium: The Informal Economy, Barcelona, October 12, 2012.
- From Human-Computer Interaction to Social Computing*. CalIT2 Igniting Technology: Understanding a Digitized Life event, UC Irvine, May 30, 2012.
- Technology and the Creation of Consumers*. Sino European Usability Center, Dalian Maritime University, Dalian, China, July 24, 2009.
- Digital Money: Engaging Potential for Personal Empowerment* (with Hsain Ilahiane). In panel on New Directions in Engaged Anthropology: Technologies, Empowerment, and Sustainability, Memphis, TN, March 26, 2008.
- What's Personally Empowering about Digital Money?* Intel Research Annual Symposium, Napa, CA, August 10, 2007.
- Researching People and Practices for Technology Development* (with Hsain Ilahiane). Centre de Recherche et des Sciences Sociales, Université Hassan II, Casablanca, Morocco, December 6, 2006.
- Home Lives and Home Technologies: An Ethnographic Perspective*. Digital Home Seminar Series, Intel Research Berkeley and UC Berkeley, April 12, 2005.
- Trust and Identity in Being On and Off the Grid(s)* (with Michele Chang). In panel on Trusted Anthropology, Society for Applied Anthropology Annual Meeting, Dallas, TX, April 3, 2004.
- Design Ethnography at Intel: Expanding and Grounding Imagination for Future Computing Value*. Computer Science Seminar, Oregon State University, January 23, 2003.
- Collections and Collecting in the Home*. 18th Annual HCIL Symposium, U. Maryland, May 31, 2001.

Collecting People, Collecting Practices. Second Human-Centered Product Innovation Conference, Intel Oregon, May 2, 2001.

PATENTS

Display of digital information content and method of selection. Mainwaring, S.D. and Brooke, T.L. US Patent 7240333, 2007, Intel Corporation (2001).

Method and apparatus to select content. Barile, S.D., Bell, G., Mainwaring, S.D., and Brooke, T.L. US Patent 6831570, 2004, Intel Corporation (2001).

Method and apparatus for sending presence messages. Hindus, D., Brechin, E., Dorogusker, J.L., Hagström, A.E., Mainwaring S.D., Bayley, O., Moeslinger, S., Burns, C., Jackson, D.C., Guilhamet, S., Fogg, B.J., White, S.M. US Patent 6956497, 2005, Vulcan Patents LLC (1998). Included in US Patent 8509137, 2013, Interval Licensing LLC (2011).

Method and apparatus for sending and receiving lightweight messages. Mainwaring, S.D., Hindus, D., Mogensen, C. and Burns, C. US Patent 6351271, 2002, Interval Research Corporation (1998).

Variable bandwidth communication systems and methods. Hindus, D., Mainwaring, S., Pedersen, E., White, S.M., and Gaver, W. US Patent 6282206, 2001, Interval Research Corporation (1998). Included in US Patent 7953112, 2011, Interval Licensing LLC (2007) and US Patent 8416806, 2013, Interval Licensing LLC (2011).

INTERNS SUPERVISED

- 2008 Camellia George, California College of the Arts, *Navigating future moneyscapes*
- 2007 Yang Wang, UC Irvine, *Q Coins and the online gaming ecosystem in China*
- 2006 Johanna Brewer, UC Irvine, *The aesthetics of mobility in the London Underground*
- 2006 Shannon May, UC Berkeley, *ICTs in a rural Chinese village* (with J. Sherry and R. Beckwith)
- 2005 Peyina Lin, University of Washington, *Cars, privacy, and OnStar*
- 2004 Irina Shklovski, Carnegie Mellon University, *Role of mediated communication in coping with the stress of a long distance residential move*

PROFESSIONAL SERVICE

Reviewer for CHI, CSCW, DIS, Ubicomp, and EPIC conferences

Local Arrangements Chair, CSCW 2017

Program Committee member, DIS 2014 and DIS 2017

Area Chair (Interaction Beyond the Individual subcommittee), CHI 2013

Program Committee member, Ubicomp 2013

Workshops Co-Chair, CSCW 2011

Participant in NSF Sponsored Workshop on Computing at the Margins, Georgia Tech, 2010

Publications Co-Chair, CSCW 2002

Electronic Publishing Chair, CSCW 1996, CSCW 1998, CSCW 2000

External Advisory Board Chair, Institute for Money, Technology, and Financial Inclusion (IMTFI), UC Irvine, 2008-2016

AFFILIATIONS

Affiliate Assistant Professor, Department of Human Centered Design and Engineering (HCDE), College of Engineering, University of Washington, 2017-present

Association for Computing Machinery (ACM), member, 1994-present

ACM Special Interest Group in Human-Computer Interaction (SIGCHI), member, 1994-present

Association for Psychological Science (APS), member, 1988-2006

Environmental Design Research Association (EDRA), member, 1996-1998