

# Human-Computer Interaction

## PhD Qualifying Examination Reading List,<sup>1</sup> Spring 2016

“Human-Computer Interaction (HCI) is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.”

— 1992, SIGCHI Curriculum Development Group

The HCI PhD Qualifying Examination seeks to test the following:

1. Knowledge of the breadth of research topics in HCI (e.g., accessibility, information visualization, computer-mediated communication),
2. Ability to establish principles in HCI (e.g., embodied interaction, Fitts’ Law) into new research (e.g., studying phenomena around computer use) and practical problems (e.g., designing a user interface),
3. Differentiate and select
4. Proficiency in research design and data analysis for human-centered computing.

Students interested in taking the HCI Qualifying Examination are strongly advised to take CS-570, *Introduction to Human-Computer Interaction* and CS/Psych-770, *Human-Computer Introduction* or equivalent courses at another institution. The majority of the reading list below is made up of the readings from these classes. The list below is for Fall 2016 and is subject to change for future Qualifying Examinations. The readings are categorized by topic and sorted by publication year. The readings can be accessed only from the campus network or using the university [VPN](#) system.

## Reading List

### *HCI Principles & Fundamentals*

- ★ Grudin, J. (2012). [A moving target: The evolution of human-computer interaction](#). In J. Jacko (Ed.), *Human-Computer Interaction Handbook (3rd Edition)*, Taylor & Francis, 2012.
- ★ Rogers, Y. (2004). [New theoretical approaches for human-computer interaction](#). *Annual Review of Information Science and Technology*, 38(1), pp. 87–143.
- Card, S. & Moran, T. (1986). [User technology—from pointing to pondering](#). In *Proceedings of the 1986 ACM Conference on the History of Personal Workstations*, pp. 183-198.
- Grudin, J. (1994). [Groupware and social dynamics: eight challenges for developers](#). *Communications of the ACM*, 37 (1), 92–105.
- Ellis, C. A., Gibbs, S. J., and Rein, G. (1991). [Groupware: some issues and experiences](#). *Communications of the ACM*, 34 (1), 39–58.
- Weiser, M. (1991). [The Computer for the 21st Century](#). *Scientific American*, September 1991.
- Nardi, B. (1996) [Studying context: A comparison of activity theory, situated action models, and distributed cognition](#), In B. Nardi (Ed.) *Context and consciousness: Activity theory and human-computer interaction*, pp. 69–102.
- Hollan, J., Hutchins, E., & Kirsh, D. (2000). [Distributed cognition: toward a new foundation for human-computer interaction research](#). *ACM Transactions on Computer Human Interaction*, 7 (2), 174–196.
- Nass, C. & Moon, Y. (2000). [Machines and mindlessness: Social responses to computers](#). *Journal of Social Issues*, 56 (1), 81–103.
- Myers, B., Hudson, S. E., & Pausch, R. (2000). [Past, present, and future of user interface software tools](#). *ACM Transactions on Computer-Human Interaction*, 7 (1), 3–28.
- ★ Abowd, G. D. and Mynatt, E. D. (2000). [Charting past, present, and future research in ubiquitous computing](#). *ACM Transactions on Computer-Human Interaction* 7 (1), 29-58.
- Cassell, J. (2001). [Embodied conversational agents: Representation and intelligence in user interfaces](#). *AI Magazine*, 22 (4), 67–83.

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<sup>1</sup> Version 1 of this list was published for Fall 2011. Version 2 is edited for Spring 2016. V2 additions are marked with a star (★).

- Walther, J.B. and Parks, M.R. (2002). [Cues filtered out, cues filtered in.](#) *Handbook of interpersonal communication*, pp. 529–563.
- Whittaker, S. (2003). [Theories and methods in mediated communication.](#) In Graesser, A., Gernsbacher, M., and Goldman, S. (Ed.) *The Handbook of Discourse Processes*. Mahwah, NJ: Lawrence Erlbaum Associates, pp. 243–286.
- ★ Abascal, J., & Nicolle, C. (2005). [Moving towards inclusive design guidelines for socially and ethically aware HCI.](#) *Interacting with Computers*, 17(5), 484-505.

### Study Design & Data Analysis

- ★ Olson, J. S., & Kellogg, W. A. (2014). [Ways of Knowing in HCI.](#) Springer, New York, NY.
- McGrath, J. E. (1995). [Methodology Matters: Doing Research in the behavioral and social sciences.](#) In R. M. Baecker, J. Grudin, W. A. S. Buxton, S. Greenberg, (eds.), *Readings in Human-Computer Interaction: Toward the Year 2000*, pp. 152–169.
- Edmondson, A. C., & McManus, S. E. (2007). [Methodological Fit in Management Field Research.](#) *The Academy of Management Review*, 32 (4), 1155–1179.
- ★ Mason, W., & Suri, S. (2012). [Conducting behavioral research on Amazon’s Mechanical Turk.](#) *Behavior research methods*, 44(1), 1-23.
- ★ Kittur, A., Nickerson, J. V., Bernstein, M., Gerber, E., Shaw, A., Zimmerman, J., ... & Horton, J. (2013). [The future of crowd work.](#) In *Proceedings of the 2013 conference on Computer supported cooperative work* (pp. 1301-1318). ACM.
- ★ MacKenzie, I. Scott. (2013). [Human-computer interaction: an empirical research perspective, Chapter 6: Hypothesis Testing](#) Morgan Kaufmann Publishers. (Only available online through Books 24x7.)
- ★ Wolfinger, N. H. (2002). [On writing fieldnotes: collection strategies and background expectancies.](#) *Qualitative research*, 2(1), 85-93.
- ★ Hsieh, H. F., & Shannon, S. E. (2005). [Three approaches to qualitative content analysis.](#) *Qualitative health research*, 15(9), 1277-1288.
- ★ Saldaña, J. (2009). [The coding manual for qualitative researchers, Chapter 1.](#) Sage Publications Limited.
- ★ Suddaby, R. (2006). [From the editors: What grounded theory is not.](#) *Academy of management journal*, 49(4), 633-642.
- ★ Shah, S. K., & Corley, K. G. (2006). [Building Better Theory by Bridging the Quantitative–Qualitative Divide.](#) *Journal of Management Studies*, 43(8), 1821-1835.
- ★ Iida, M., Shrout, P. E., Laurenceau, J. P., & Bolger, N. (2012). [Using diary methods in psychological research.](#) In Cooper, H., Camic, P. M., Long, D. L., Panter, A. T., Rindskopf, D., Sher, K. J. (Eds), *APA handbook of research methods in psychology, Vol 1: Foundations, planning, measures, and psychometrics*, (pp. 277-305). Washington, DC, US: American Psychological.

### Usability Evaluation Methods

- Nielsen, J. (1993) [Usability Engineering \(Chapter 5\).](#) Morgan Kaufmann, pp. 115–163.
- Nielsen, J. (1993). [Usability Engineering \(Part of Chapter 6\).](#) San Francisco: Morgan Kaufmann, pp. 195–206.
- Barnum, C. M. (2011). [Usability Testing Essentials: Ready, Set...Test! \(Chapters 1-2\).](#) Burlington, MA: Morgan Kaufmann.
- ★ Wright, P. C. and Monk, A. F. (1991) [The use of think-aloud evaluation methods in design.](#) *SIGCHI Bull.* 23, 1, 55-57.
- ★ Wharton, C., Rieman, J., Lewis, C., & Polson, P. (1994). [The cognitive walkthrough method: A practitioner's guide.](#) In *Usability inspection methods* (pp. 105-140). John Wiley & Sons, Inc.

### Studying Users

- Holtzblatt, K. & Beyer, H. (1993) [Making customer-centered design work for teams.](#) *Communications of the ACM*, 36 (10), 93–103.
- ★ Blomberg, J., & Burrell, M. (2009). [An ethnographic approach to design.](#) In A. Sears and J. A. Jacko, *Human-Computer Interaction: Development Process*, pp. 71-94. CRC Press.
- Gaver, B., Dunne, T., and Pacenti, E. (1999). [Design: Cultural probes.](#) *Interactions* 6 (1), 21–29.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004). [A Survey Method for Characterizing Daily Life Experience: The Day Reconstruction Method.](#) *Science*, 306 (5702), 1776–1780.
- ★ Albert, B., Albert, W., Tullis, T., & Tedesco, D. (2010). [Beyond the Usability Lab: Conducting Large-scale User Experience Studies; Chapter 6 - Data Analysis and Presentation,](#) Pages 121-177. Morgan Kaufmann.

### *Modeling Users*

- Card, S. K., Moran, T. P., & Newell, A. (1980). [The keystroke-level model for user performance time with interactive systems](#). *Communications of the ACM*, 23 (7), 396–410.
- Olson, J. R. & Olson, G. M. (1990). [The growth of cognitive modeling in human-computer interaction since GOMS](#). *Human-Computer Interaction*, 5 (2), 221–265.
- Cooper, A., Reimann, R., & Cronin, D. (2007). [About Face 3 \(Chapters 5-6\)](#). Wiley.

### *Interaction Design*

- Gaver, W. W. (1991) [Technology affordances](#). In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'91)*, pp. 79–84.
- Norman, D. A. (1999) [Affordance, conventions, and design](#). *Interactions* 6 (3), 38–43.
- Cooper, A., Reimann, R., & Cronin, D. (2007) [About Face 3 \(Chapters 13-14\)](#). Wiley.
- ★ Buxton, W. (2007) [Sketching User Experiences, Part 1](#). San Francisco: Morgan Kaufmann, pp. 105-125, 135-141, 371-391.
- ★ Kensing, F. and Madsen, K.H. (1991). [Generating visions: Future workshops and metaphorical design](#). In J. Greenbaum and M. Kyng, *Design at work: Cooperative design of computer systems*. Hillsdale, NJ: Lawrence Erlbaum, pp. 155-168.
- ★ Vora, P. (2009). [Web application design patterns \(Chapters 1, 13\)](#). Morgan Kaufmann.

### *Prototyping*

- Lichter, H., Schneider-Hufschmidt, M., & Zullighoven, H. (1994). [Prototyping in industrial software projects-bridging the gap between theory and practice](#). *IEEE Transactions on Software Engineering*, 20 (11), 825–832 .
- Rettig, M. (1994) [Prototyping for tiny fingers](#). *Communications of the ACM*, 37 (4), 21–27.
- Unger, R. & Chandler, C. (2009) [A Project Guide to UX Design: For User Experience Designers in the Field or in the Making \(Chapter 12\)](#). New Riders.