

CRISTEN TORREY

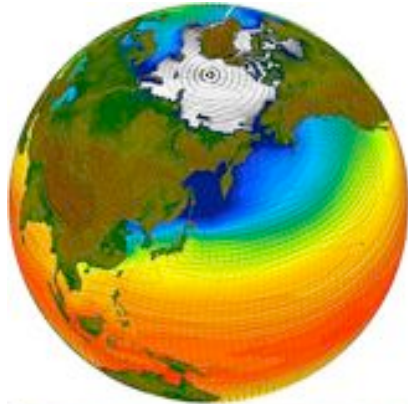
2103 West Street, Berkeley, CA 94702
(510) 239-9639 | cristentorrey@gmail.com

EDUCATION

- 2003–2009 PhD, Human Computer Interaction
Human Computer Interaction Institute
Carnegie Mellon University
Pittsburgh, PA
- 2002–2003 MS, Learning Sciences
Carnegie Mellon West
Mountain View, CA
- 1995–1999 BA, Humanities
Pepperdine University
Malibu, CA

EXPERIENCE

- 2010–Present **Postdoctoral Research Scientist**
School of Information
University of Michigan
Ann Arbor, MI
Ethnography of code sharing within earth and climate modeling communities. Findings inform the ongoing development of an online collaboration portal.
- 2009–2010 **Lecturer**
Graduate School of Education
University of California Berkeley
Berkeley, CA
Created and taught graduate-level courses in instructional technology design.
- 2003–2009 **Graduate Research Assistant**
Human Computer Interaction Institute
Carnegie Mellon University
Pittsburgh, PA
Contributed to a diverse set of HCI research projects including natural language interfaces, disaster relief coordination, and human robot interaction.
- 2008 **Research Intern**
Internet Experiences Group
Yahoo! Research
Santa Clara, CA
Conducted user research study of hackers and crafters searching for information online. Findings inform the design of exploratory search interfaces.
- 2006 **Research Intern**
Digital Home Group
Intel Corporation
Santa Clara, CA
Conducted user research study of electronics hackers who document their projects online. Findings inform the design of multimedia knowledge sharing tools.
- 2002–2003 **Graduate Research Assistant**
Carnegie Mellon West
Mountain View, CA
Contributed to the design, development, and evaluation of narrative-based online curricula.
- 2001–2002 **ESL Instructor**
SIAS University
Xinzheng, People's Republic of China
Taught conversational English classes to Chinese university students.
- 1999–2001 **Copywriter**
eToys.com
Santa Monica, CA
Wrote helpful, friendly, and clever descriptions of toys.



Visualized output from the Community Climate System Model (CCSM). (Photo credit: NCAR)

Collaboration Tools for Earth & Climate Modelers

The long-term ethnographic approach used on this project develops deep insights about institutional and cultural values that participants can rarely articulate explicitly in an interview.

Motivation

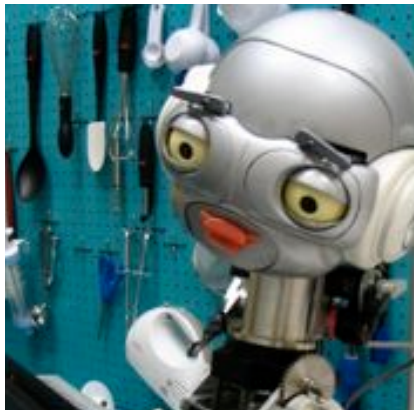
Earth system modelers want to better leverage their collective efforts. How might open-source collaboration tools be reconfigured to support code sharing in the earth sciences?

Methods

Ethnographic observation of collaboration activities within research teams, at scientific conferences, on software development conference calls, and in virtual spaces such as project wikis, code repositories, and data portals.

Design Insights

Because of the complexity of earth system models, sharing code is a painstaking process that requires a lot of back and forth between scientists. There are significant trade-offs to making this communication public via collaborative software—scientists need flexible control over what they share and when they share it. The design challenge for the collaboration platform is to support a communication backchannel while offering a sensible trajectory toward public documentation.



A robotic helper programmed to provide verbal assistance in the kitchen.

Socially Sensitive Help Giving from Robots

A classic user laboratory study—what type of robotic behavior do users prefer?—with a twist. The laboratory task was baking a batch of cupcakes.

Motivation

Robots are often conceptualized as ideal assistants, smart and steadfast. But can help from robots (like help from some people) become overbearing and disruptive? What makes a robot a humane helper?

Methods

Brought baking supplies to a university dorm and recorded people's conversations (with permission) as they tried to make cupcakes. Coded these "helpful" tips by their linguistic features and programmed a robot with different helping styles based on the observed conversations. Ran a controlled laboratory experiment to measure perceptions of these different helping styles.

Design Insights

Robots using an indirect style ("so actually you might just want to...") were perceived to be less controlling, but there was a drawback. Indirect styles were also perceived to be less intelligent. An intriguing design direction: A not-quite-sure robot whose help will never be confused with a command.



The physical context for web searches about craft information. (Photo credit: Barbara Vredenburg)

Web Search Strategies of Hackers & Crafters

Visiting participants in their homes and studios was the key to getting rich details and vivid stories about web search experiences.

Motivation

There is no shortage of information on the internet about how to make things. But can people find it when they need it? And can they make sense of it?

Methods

Recruited participants with custom postcards left at hacker/crafter spots around the Bay Area. Conducted semi-structured interviews in participants' homes or studios, where we could easily reference both online and offline activities.

Design Insights

Participants used creative strategies to expand the keyword space, rather than progressively narrowing their searches. A vertical search engine tailored to craft knowledge would make information like skills, timeframe, and materials searchable. The "fuzziness" of the search results would be adjustable, allowing users to see results just beyond their vocabulary.



A one-handed Xbox controller—from schematic to built artifact. (Photo credit: Ben Heck)

Multimedia Documentation of Electronics Hacking Projects

Successful How-To webpages were the core pieces of data for this project. Brief interviews with their creators were indispensable in learning about private failures in addition to public successes.

Motivation

Telling someone else how to build something can be really hard. What strategies do successful How-To authors use?

Methods

Identified a couple dozen How-To authors linked from popular hacking blogs. Performed a content analysis of text and multimedia from these online How-To pages. Conducted semi-structured interviews with the authors by phone or instant messenger about the steps in their process and the challenges they faced.

Design Insights

Immense efforts are required to create good How-To pages, so authors are reluctant to give up control of their content to a third-party site. At the same time, electronics hackers create How-To pages because they want to connect with others like themselves. The tension between individual control and the desire for community opens up design possibilities—thinking about how to link a loose, informal network of autonomous sites together rather than how to motivate them to consolidate.



A collection point for donated supplies headed to New Orleans. (Photo credit: Barret Anspach)

Donation Coordination by Volunteer Networks

Combining quantitative and qualitative coding of archived communication logs gave the best of both worlds—the big picture plus quality time with the most significant message threads.

Motivation

After Hurricane Katrina, people used the communication tools with which they were familiar, like blogger or craigslist, to coordinate the delivery of material donations. How did they self-organize? What challenges did they encounter?

Methods

Log analysis of multiple sites of coordination. Hand-coded linguistic features in a subset of messages. Designed and administered a survey to get basic demographic information on volunteers.

Design Insights

Exposed a tradeoff in community organization. Sites with an authoritarian approach to coordination had less conflict, but decentralized communities, such as craigslist, had greater longevity. This finding focused our design attention on identifying frequent sources of conflict, such as identity and fraud, and mitigating them by strengthening reputation systems.



A band performs (and sells CDs) on the streets of New Orleans. (Photo credit: kippbakr)

Rebuilding Social Networks after Katrina

Many user populations are not going to respond to an ad on craigslist. In this project, we had to go where our target participants spent time and gain their trust.

Motivation

Musicians frequently find work through their local social networks. After Hurricane Katrina, how were musicians using communication technologies to rebuild their connections?

Methods

Recruited musicians, sound engineers, and managers from shows and music events around New Orleans. Conducted semi-structured interviews on sidewalks, in coffee shops, or anywhere we could hear well enough to have a conversation.

Design Insights

Reestablishing social ties after a disaster is as important as meeting one's material needs. Several "people finder" websites consolidated data about people's whereabouts after the hurricane, but control over information on these sites was centralized and sluggish. The design question that emerges from this work is how people, even those reeling from a disaster, can crowdshare responsibility for finding and caring for members of their social networks.

SKILLS

User Research Methods Ethnographic observation, semi-structured interviews, multi-method linguistic analysis, log analysis, surveys, laboratory experiments, A/B testing, card sorting, cognitive task analysis.

Software Qualitative Analysis (NVIVO, Saturate)
 Statistical Analysis (JMP, SPSS)
 Adobe Illustrator, Photoshop
 Omnigraffle
 iWork

SELECTED PUBLICATIONS

Refereed Conference Papers **Torrey, C.**, Churchill, E., & McDonald, D.W. (2009). Learning How: The Search for Craft Knowledge Online. In the *Proceedings of the Conference on Human Factors in Computing 2009*, ACM Press.

Torrey, C., McDonald, D.W., Schilit, W., & Bly, S. (2007). How-To Pages: Informal Systems of Expertise Sharing. In the *Proceedings of the European Conference on Computer Supported Cooperative Work 2007*, Springer-Verlag.

Torrey, C., Powers, A., Fussell, S. R., & Kiesler, S. (2007). Improving a Robot’s Ability to Give Direction with Awareness of Task Progress & Human Gaze. In the *Proceedings of the Human Robot Interaction Conference 2007*, ACM Press.

Powers, A., Kiesler, S., Fussell, S.R., and **Torrey, C.** (2007). Comparing a computer agent with a humanoid robot. In the *Proceedings of the Human Robot Interaction Conference 2007*, ACM Press.

Torrey, C., Lee, M., Burke, M. Dey, A., Fussell, S. R., & Kiesler, S. (2007). Connected Giving: Ordinary People Coordinating Disaster Relief on the Internet. In the *Proceedings of the Fortieth Annual Hawaii International Conference on System Sciences 2007*, Computer Society Press.

Torrey, C., Powers, A., Marge, M., Fussell, S. R. & Kiesler, S. (2006). Effects of Adaptive Robot Dialogue on Information Exchange & Social Relations. In the *Proceedings of the Human Robot Interaction Conference 2006*, ACM Press.

Rosé, C. P. & **Torrey, C.** (2005). Interactivity versus Expectation: Eliciting Learning Oriented Behavior with Tutorial Dialogue Systems. In the *Proceedings of Interact 2005*, Springer-Verlag.

Rosé, C. P. & **Torrey, C.** (2004). DReSDeN: Towards a Trainable Tutorial Dialogue Manager to Support Negotiation Dialogues for Learning & Reflection. In the *Proceedings of the International Conference on Intelligent Tutoring Systems 2004*, Springer-Verlag.

Rosé, C. P., **Torrey, C.** (2004). CycleTalk: Towards a Dialogue Agent that Guides Design with an Articulate Simulator. In the *Proceedings of the International Conference on Intelligent Tutoring Systems 2004*, Springer-Verlag.

SELECTED
PUBLICATIONS

- Dissertation **Torrey, C.** *How Robots Can Help: Communication Strategies that Improve Social Outcomes.* (2009). Advised by Sara Kiesler and Susan R. Fussell.
- Journal Article Kiesler, S., Powers, A., Fussell, S.R., and **Torrey, C.** (2008). Anthropomorphic Interactions with a Software Agent and a Robot. *Social Cognition*, 26(2), 168-180.
- Book Chapters **Torrey, C.**, Fussell, S. R., and Kiesler, S. (2009). What robots could teach us about perspective taking. In Morsella, E. (ed.) *Expressing Oneself/Expressing One's Self: A festschrift in honor of Robert M. Krauss.* Taylor and Francis: NY.
- Torrey, C.**, Burke, M., Dey, A., Fussell, S. and Kiesler, S. (2007). Approaches to Authority in Online Disaster Relief Communities after Hurricane Katrina. in S. Weisband (ed.) *Leadership at a Distance: Research in Technologically Supported Work.* Lawrence Erlbaum: Mahwah, NJ.
- Refereed Workshop Papers **Torrey, C.** (2008). The Social Dimensions of Receiving Unsolicited Help from a Robot. In the *Extended Abstracts of the Conference on Human Factors in Computing 2008*, ACM Press.
- Torrey, C.**, Fussell, S. R., & Kiesler, S. (2008). Trying to Help: Social Challenges for Smart Robots. In the *Proceedings of the Workshop on Robotic Helpers: User Interaction, Interfaces & Companions in Assistive & Therapy Robotics.*
- Torrey, C.**, Fussell, S. R., & Kiesler, S. (2005). Appropriate Accommodations: Speech Technologies & the Needs of Older Adults. In the *Proceedings of the AAAI Fall Symposium on Caring Machines*, AAAI Press.
- Magazine Article **Torrey, C.** and McDonald, D.W. (2007). How-To Web Pages. *Computer* 40, 8 (Aug 2007), 96-97.

PROFESSIONAL
AFFILIATIONS

- Manuscript Reviewer ACM/SIGCHI Conference on Computer Supported Cooperative Work (CSCW)
ACM/SIGCHI Conference on Human Factors in Computing (CHI)
IEEE/ACM Human Robot Interaction Conference (HRI)
National Science Foundation (NSF)
Transactions on Computer Human Interaction (ToCHI)
Interacting with Computers
International Journal of Computer Supported Cooperative Work
- Member Association of Computing Machinery (ACM)
Bay Area Chapter of ACM/SIGCHI (BayCHI)
Society for the Social Studies of Science (4S)