

## M. Six Silberman

### EDUCATION

#### Formal

Ph.D. student, Informatics, University of California, Irvine, 2009–2010, 2013–present. Degree expected Jun 2015.

Research: Economics and ethics of crowd work; sustainability and human-computer interaction.

Dissertation: *Another future of crowd work: information technology, social science, and social value*.

M.S. Engineering, Arts Computation Engineering, University of California, Irvine, Sep 2009.

Thesis: *Experiments in critical mathematical modelling*.

Topics: Epistemological problems in economics; reflective strategies in mathematical modelling.

B.S. Applied Mathematics, Columbia University in the City of New York, May 2007.

#### Informal

Hacker School batch[3], New York, New York, Jun – Aug 2012.

### PUBLICATIONS

#### In preparation

Silberman, M. S., L. Nathan, B. Knowles, M. Håkansson. Toward engaged sustainable HCI: theories and practices.

In preparation for submission to *ACM Transactions on Computer-Human Interaction*.

#### Journal articles

Tomlinson, B., E. Blevis, B. Nardi, D. Patterson, M. S. Silberman, Y. Pan. Collapse informatics and practice: theory, method, and design. *ACM Transactions on Computer-Human Interaction* **20**(4): 24, 2013.

Tomlinson, B., M. S. Silberman. The cognitive surplus is made of fossil fuels. *First Monday* **17**(11), 31 Oct 2012.

#### Conference papers

Penzenstadler, B., et al. (29 authors). ICT4S 2029: What will be the systems supporting sustainability in 15 years? *Proc. ICT4S 2014*: 30-39. Best Paper Nominee.

Baumer, E. P. S., et al. (28 authors). CHI 2039: Speculative research visions. *Proc. CHI EA 2014*: 761-770 (alt.chi).

Silberman, M. S., E. Blevis, E. Huang, B. A. Nardi, L. P. Nathan, D. Busse, C. Preist, S. Mann. What have we learned? A SIGCHI HCI & Sustainability community workshop. *Proc. CHI EA 2014*: 143-146.

Irani, L. C., M. S. Silberman. Turkopticon: interrupting worker invisibility in Amazon Mechanical Turk. *Proc. CHI 2013*: 611-620. “Best Paper Award” (best 1% of accepted papers). Translated and collected as Turkopticon: Ein Tool, um Arbeiter auf Mechanical Turk sichtbar zu machen, C. Benner, ed. *Crowdwork—zurück in die Zukunft? Perspektiven digitaler Arbeit [Crowd Work: Back to the Future? Perspectives on Digital Work]*: 131. Bund Verlag, 2014. Introduction at [tinyurl.com/o173dvn](http://tinyurl.com/o173dvn). Included in syllabi: C. Callison-Burch, Crowdsourcing & Human Computation, Univ. Penn. Comp. & Inf. Sci., Fall 2014; R. Mason, Projects in Social Media, Spring 2013, Univ. Wash. iSchool; P. Sengers, Designing Technologies for Social Impact, Fall 2013, Cornell Information Studies/Science and Technology Studies.

Tomlinson, B., M. S. Silberman, E. Blevis, Y. Pan, D. Patterson. Collapse informatics: augmenting the sustainability & ICT4D discourse in HCI. *Proc. CHI 2012*: 655-664. Best sustainability paper award. “Best Paper Honorable Mention” (best 5% of accepted papers). Included in syllabus: B. Nardi, Collapse Computing, Spring 2012, UC Irvine Informatics.

Tomlinson, B., et al. (31 authors). Massively distributed authorship of academic papers. *Proc. CHI EA 2012*: 11-20 (alt.chi).

Baumer, E. P. S., M. S. Silberman. When the implication is not to design (technology). *Proc. CHI 2011*: 2271-2274. “Best Paper Honorable Mention” (best 5% of accepted papers). Included in syllabus: D. Patterson, User Interaction Software, Winter 2011, UC Irvine Informatics.

Silberman, M. S., J. Ross, L. C. Irani, B. Tomlinson. Sellers’ problems in human computation markets. *Proc. HCOMP 2011*: 18-21. Included in syllabus: B. Hartmann, M. Franklin, T. Parikh, Crowdsourcing Seminar, Spring 2011, UC Berkeley EECS.

Silberman, M. S., B. Tomlinson. Toward an ecological sensibility: tools for evaluating sustainable HCI. *Proc. CHI EA 2010*: 3469-3474 (works-in-progress).

Ross, J., L. C. Irani, M. S. Silberman, A. Zaldivar, B. Tomlinson. Who are the crowdworkers? Shifting demographics in Mechanical Turk. *Proc. CHI EA 2010*: 2863-2872 (alt.chi). Included in syllabi: D. Ganesan,

Crowdsourcing: Opportunities and Challenges, Fall 2010, U. Mass. Amherst CS; B. Hartmann, M. Franklin, T. Parikh, Crowdsourcing Seminar, Spring 2011, UC Berkeley EECS; J. Vertesi, Sociology of Technology, Fall 2010, Princeton Sociology; F. Turner, Digital Media in Society, Fall 2012, Stanford Communication; K. Starbird, Crowds and Crowdsourcing, Fall 2012, Univ. Wash. Human Centered Design & Engrg.; J. Gregory, Social Analysis of Computing, Fall 2013, UC Irvine Informatics.

Huh, J., L. P. Nathan, M. S. Silberman, E. Blevis, B. Tomlinson, P. Sengers, D. Busse. Examining appropriation, re-use, and maintenance for sustainability. *Proc. CHI EA 2010*: 4457-4460 (workshop).

### Magazine articles

Silberman, M. S., L. Nathan, B. Knowles, R. Bendor, A. Clear, M. Håkansson, T. Dillahunt, J. Mankoff. Next steps for sustainable HCI. *Interactions* **21**(5): 66-69, 2014.

Irani, L., M. S. Silberman. From critical design to critical infrastructure: lessons from Turkopticon. *Interactions* **21**(4): 32-35, 2014.

S. L. Irani-Silberman [M. S. Silberman and L. Irani]. Interrupting invisibilities and bridging worlds: an essay on the work of [turkopticon.differenceengines.com](http://turkopticon.differenceengines.com). Special Mention, 2013 Hannah Arendt Prize in Critical Theory and Creative Research. Judges: Anne-Marie Oliver, Barry Sanders, Claire Bishop, Judith Butler, Barbara Duden, Julia Kristeva, Heike Kühn, Martha Rosler. *Untitled Magazine* (Pacific Northwest College of Art), 26 Sep 2013.

Tomlinson, B., D. Patterson, Y. Pan, E. Blevis, B. Nardi, M. S. Silberman, J. Norton, J. LaViola. What if sustainability doesn't work out? *Interactions* **19**(6): 50-55, 2012.

Tomlinson, B., M. S. Silberman, J. White. Can more efficient IT be worse for the environment? *IEEE Computer* **44**(1): 87-89, 2011.

Silberman, M. S., L. C. Irani, J. Ross. Ethics and tactics of professional crowd work. *XRDS* **17**(2): 39-43, 2010. Included in syllabi: M. Lease, Crowdsourcing: Theory, Methods, and Applications, Spring 2011, UT Austin Inf. School; K. Starbird, Crowds and Crowdsourcing, Fall 2012, Univ. Wash. Human Centered Design & Engrg.; J. Gregory, Social Analysis of Computing, Fall 2013, UC Irvine Informatics.

### Peer-reviewed workshop papers

Gilbert, A. M., M. S. Silberman. Re-purposed activist as new sustainable HCI researcher. *What Have We Learned?*, workshop at CHI 2014.

Silberman, M. S. Norms, infrastructures, goals, and needs. *Simple, Sustainable Living*, workshop at CHI 2012.

Kaufman, S. J., M. S. Silberman. Rebound effects in sustainable HCI. *Everyday Practice and Sustainable HCI*, workshop at CHI 2011.

Silberman, M. S., B. Tomlinson. Precarious infrastructure and postapocalyptic computing. *Examining Appropriation, Re-Use, and Maintenance for Sustainability*, workshop at CHI 2010. Included in syllabus: B. Nardi, Collapse Computing, Spring 2012, UC Irvine Informatics.

Silberman, M. S. Designing economic interactions. *Defining the Role of HCI in the Challenges of Sustainability*, workshop at CHI 2009.

### Technical reports

Choontanom, T., M. S. Silberman. Edge effects: complex practices between open source and proprietary software development. UC Irvine Lab. for Ubiquitous Computing and Interaction Tech. Rep. LUCI-2010-001, 2010.

### Non-archival extended abstracts

Silberman, M. S., B. Tomlinson. Representing the search spaces of everyday human sustainability problems. Accepted to CompSust 2010.

Silberman, M. S., B. Tomlinson. Design as situated reconfiguration: toward a transdisciplinary framework between ecology and design. Accepted to DRS 2010.

Silberman, M. S. "We, in some strange power's employ, move on a rigorous line." Accepted to DAC 2009.

### Unpublished papers

Silberman, M. S. Efficiency and sustainability. UC Irvine Social Code Group Tech. Memo., 2010.

Silberman, M. S. What's fair? Rational action and its residuals in an electronic market. 2010.

Silberman, M. S., B. Tomlinson. Practical cartographies in material-semiotic assemblages. 2009.

Silberman, M. S., S. J. Kaufman, B. Tomlinson. Notes toward an experimental political ecology/nomy. 2009.

Silberman, M. S. Protocological experiments toward a critical gaming. 2009.

Silberman, M. S. Modelling transportation networks with Octave. 2008.

Silberman, M. S., T. Heikkila. Information architecture and sustainable development. Columbia University Earth Institute Discussion Paper, 2007.

## Popular press

Silberman, M. S. Don't text message breakup, bitch. *New University* **43**(13), 11 Feb 2008.

Silberman, M. S. Un/sustainable futures. Column, *Columbia Daily Spectator*, Jan – Apr 2007. 6 issues.

## INVITED PRESENTATIONS

9 Sep 2014. Crowd work and the sharing economy: a non-exuberant introduction. Guest lecture (remote) for course, The Future of the Digital Commons, KTH/Royal Institute of Technology, Stockholm, Sweden.

3 Dec 2013. Mechanical Turk and Turkopticon. Guest lecture for course, Social Analysis of Computing, UC Irvine.

25 Sep 2013. Gewerkschaftliche Perspektiven für die Crowd (Trade union perspectives for the crowd). Hans-Böckler-Stiftung/IG Metall Engineering- und IT-Tagung: Zusammenarbeit (Hans Böckler Foundation and IG Metall Engineering and IT Conference: Cooperation). 24–26 Sep 2013, Siemens AG, Berlin, Germany.

30 Sep 2013. Dynamics and governance of crowd work markets: lessons from practice, open questions, and next steps. Invited keynote, International Workshop on Crowd Work and Human Computation. Karlsruhe Service Research Institute, Karlsruhe Institute of Technology, Karlsruhe, Germany.

## SOFTWARE

*Turkopticon*. [turkopticon.differenceengines.com](http://turkopticon.differenceengines.com), [turkopticon-devel.differenceengines.com](http://turkopticon-devel.differenceengines.com). Launched October 2008, major revisions Aug 2012, May 2014; active. Chrome and Firefox add-ons and web application to allow workers on Amazon Mechanical Turk to review employers. With L. Irani, UC San Diego Dept. of Communication. **Usage statistics:** Add-on downloads since August 2012: 28,693 (Chrome and Firefox); average review score: five stars of five (Chrome Web Store and Mozilla Add-Ons Directory, 101 reviews total). Users registered on web application: 39,877; reviews contributed in last month: 7,097; users contributing reviews in last month: 1,317. Average daily visits (1 – 26 Aug 2013), web application: 3,721; API: 8,034. **Press coverage:** *Communications of the ACM*, *Salon.com*, *The Verge*, *The Conversation with Ross Reynolds*, *New Scientist*, *East Bay Express*, and others (see below, “Press coverage of research”). **Included in syllabi:** G. Bowker, Social Analysis of Computing, Fall 2012, UC Irvine Informatics; J. Gregory, Social Analysis of Computing, Fall 2013, UC Irvine Informatics. **Miscellanea:** In August 2009, Amazon Technologies, Inc., a Nevada-based subsidiary of Amazon.com, Inc., purchased the domain [turkopticon.com](http://turkopticon.com) for unknown reasons.

*flock.rb*. Software package for visualizing flocking behavior in Ruby and Processing. August 2012.

*Can I Borrow Your Goat?* [caniborrowyourgoat.com](http://caniborrowyourgoat.com). Launched April 2010, defunct. Web database application to facilitate sharing among university housing residents. With B. Tomlinson, UC Irvine Department of Informatics.

*Augh*. Launched March 2010, defunct. Firefox add-on and web database application to avoid unnecessary recall of checked-out library books.

Software package for modelling transportation networks in Octave. May 2008.

*klhx*. May 2007. A generalized, extensible, discrete-time water balance model in MATLAB. With G. D. Kelly, Columbia University Department of Civil Engineering and Engineering Mechanics.

Discrete-time extensible integrated simulation of global water demand and food trade in MATLAB. May 2007. With D. Pontoriero, Columbia University Department of Applied Mathematics, and T. Siegfried, Columbia University Earth Institute.

Software (in MATLAB) for analyzing effects of windspeed parametrization on sea-air gas exchange in general circulation models. With C. Zappa and S. Khatiwala, Lamont-Doherty Earth Observatory, Columbia University.

## PRESS COVERAGE AND CITATION OF RESEARCH

Pooler, M. Crowdworkers form their own digital networks. *Financial Times*, 3 Nov 2014.

Huff, J. Serf boards. *The New Inquiry*, 5 May 2014.

Kessler, S., Pixel and dined: on (not) getting by in the gig economy. *Fast Company*, 18 Mar 2014.

Hirschfeld, K. Mikrojobs aus dem Netz. *Mitbestimmung* Nov 2013: 60-61.

Farber, S. Mehr Fairness für die Crowd. *IG Metall*, 24 Sep 2013. [igmetall.de/reputationssystem-fuer-amazons-mechanical-turk-12321.htm](http://igmetall.de/reputationssystem-fuer-amazons-mechanical-turk-12321.htm).

Hyman, P. Software aims to ensure fairness in crowdsourcing projects. *Communications of the ACM* **56**(8): 19-21, 25 Jul 2013.

Leonard, A. The internet's destroying work—and turning the old middle class into the new proletariat. *Salon.com*, 12 Jul 2013.

Dalenberg, A. Workers of the World Wide Web unite, Amazon's Mechanical Turk labor force is finding ways to organize. *Upstart Business Journal*, 27 Jun 2013.

Brandom, R. Union 2.0: How a browser plug-in is organizing Amazon's micro-laborers. *The Verge*, 27 Jun 2013.

Reynolds, R. What in the world is Turkopticon? *The Conversation with Ross Reynolds*, 20 Mar 2013. KUOW 94.9 FM: Seattle News and Information.

Dobson, J. Mechanical Turk: Amazon's new underclass. *Huffington Post*, 19 Feb 2013.

Hodson, H. Time to focus on the welfare on online workers. *New Scientist*, 8 Feb 2013.

Hodson, H. Crowdsourcing grows up as online workers unite. *New Scientist*, 7 Feb 2013.

Uddin, Z. The dystopian digital sweatshop the makes the internet run. *AlterNet*, 11 Sep 2012.

Cushing, E. Dawn of the digital sweatshop. *East Bay Express*, 1 Aug 2012.

Mann, S. Interview with Six Silberman. *Sustainable Lens: Resilience on Radio*, 7 Dec 2012.  
[sustainablelens.org/?p=321](http://sustainablelens.org/?p=321).

## **ACADEMIC TEACHING EXPERIENCE**

### **Teaching Assistant, INF 191: Senior Design Projects, UC Irvine, Sep 2013 – Oct 2014**

Worked closely with instructor to guide student teams to design, build, document, test, and present working web and mobile applications for research, nonprofit, and industry clients.

### **Reader, ICS 5: Environmental Issues in Information Technology, UC Irvine, Mar – Jun 2009**

Worked with another reader to grade assignments, give feedback, and support student projects.

### **Instructor, Physics and Astronomy, UC Irvine Gifted Students Academy, May – Aug 2006**

Designed and taught a series of five weeklong courses in physics and astronomy to middle-school-aged students.

## **UNDERGRADUATE HONORS THESES SUPERVISED**

Tolentino, J. Reworking software infrastructure to support scale and future maintenance in HCI. Spring 2014.

[jaytolentino.com/portfolio/ReworkingSoftwareInfrastructure\\_jtolentino.pdf](http://jaytolentino.com/portfolio/ReworkingSoftwareInfrastructure_jtolentino.pdf).

## **OTHER WORK EXPERIENCE**

**Yoga Instructor, Square One Yoga Collective, Emeryville, CA, Jan 2012**

**Yoga Instructor, Ayuh Yoga, Union City, CA, Jul 2011 – Jan 2012**

**Web Developer and Designer (Freelance) Berkeley, CA, Nov – Dec 2011**

Built simple, owner-editable websites ([pohmyoga.com](http://pohmyoga.com); [nature.berkeley.edu/~dnomura](http://nature.berkeley.edu/~dnomura)) in PHP.

**Web Developer, Designer, and Database Administrator, Assetmap Strategies, San Francisco, USA,**

Jan – Jun 2011

Assetmap ([assetmap.com](http://assetmap.com)) is a web application that helps groups share resources. The designer/developer/database administrator designs, builds, and maintains the web application.

**Web Developer and Designer, Online Fellowship Application System, Humanity in Action, New York, USA,**

Dec 2008 – Apr 2009

Humanity in Action works to build global leadership, defend minorities, and improve human rights by inspiring, engaging, and empowering the human rights leaders of the future. The developer/designer develops, designs, deploys, and maintains the online application system.

**Information Architect and Database Administrator, StartingBloc NFP, New York, USA, Jul 2007 – Mar 2009**

StartingBloc is a not-for-profit that hosts educational conferences and events to empower, educate, and connect emerging leaders to drive social innovation across sectors. Its full-time staff of two manages a rapidly growing global network of over 1000 fellows, alumni, supporters, and other stakeholders who collaborate on projects relevant to StartingBloc's mission. The information architect/database administrator develops, maintains, and administers custom and off-the-shelf software to facilitate this communication and collaboration.

**Editorial Webmaster, New University, Irvine, USA, Sep 2007 – Mar 2009**

The *New University* is the student-run weekly newspaper of the University of California, Irvine. The editorial webmaster builds, maintains, and populates the custom web application that makes the newspaper's content available online.

**Information Architect, Center for Climate Systems Research, Columbia University and NASA Goddard Institute for Space Studies, New York, USA, Jun – Aug 2007**

Interviewed stakeholders and developed a web database application for internal and public-facing use to store publications and other information pertaining to the ongoing research work of the scientific staff.

**Web Developer and Designer (Volunteer), Jun 2007**

Built and deployed, in 96 hours, a web-based auction site to manage an internal auction at JPMorgan to raise funds for the Fresh Air Fund, a nonprofit that organizes summer vacations to the country for children from disadvantaged urban communities.

**Founding Editor and Designer (Volunteer), Feb – Apr 2007**

Worked with co-editors, contributors, and researchers to name, develop, organize, design, and produce *Consilience: The Journal of Sustainable Development* ([consiliencejournal.org](http://consiliencejournal.org)).

**Print Designer (Volunteer), Feb 2007**

Designed print layout for Issue 2 of *Outlet*, a student-run sex magazine at Columbia University. Featured in “Campus Exposure,” *New York Times Magazine*, 4 Mar 2007.

## **SKILLS**

### **Programming, web development, and system administration**

Extensive experience with Rails, Sinatra, Ruby, MySQL, Facebook Graph API, HTML, and CSS for web database application development. Some experience with JavaScript (including jQuery library), Common Lisp, PHP, Java, C++, C, and Processing.

Extensive experience with MATLAB and Octave for mathematical modelling.

Eight years user-level command-line experience with Linux systems (mainly Ubuntu and Arch distributions).

Six years experience administering Linux systems (mainly Debian distribution) for production web applications.

Some experience using Amazon Web Services for production web database application development.

### **Standard software**

Extensive experience with Adobe Photoshop and InDesign/PageMaker for web and print design.

Extensive experience with Microsoft Office suite, including mathematical modelling with Excel.

Extensive experience typesetting documents in LaTeX.

### **Miscellaneous**

Certified yoga instructor, Yoga Shakti (RYS 200), Irvine, CA, Jun 2011.

Some experience with basic circuit design and construction with microprocessors (Arduino).

Some experience with basic mechanical design and construction.

Proficient in written and spoken Spanish.

## **META**

This document updated 4 Nov 2014.