

Nick Merrill

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Education

- 2018 **University of California, Berkeley**
PhD, Information Systems & Management
Committee: John Chuang (adviser), Coye Cheshire, Alva Noë
- 2013 **Northwestern University**
BA, Cognitive Science, *cum laude*, *Phi Beta Kappa*
Thesis advised by Darren Gergle and Steven Franconeri

Academic appointments

- 2018- **Center for Long-Term Cybersecurity (CLTC), UC Berkeley**
Postdoctoral Scholar (with Steve Weber)
- 2013-2018 **BioSENSE Group, UC Berkeley School of Information**
Graduate Student Researcher (with John Chuang)
- 2012-2013 **Collablab, Northwestern University**
Undergraduate Research Assistant (with Darren Gergle)
- 2010-2012 **SONIC, Northwestern University**
Undergraduate Research Assistant (with Brooke Foucault Welles)

Publications

Conference proceedings

Merrill, N. & Weber, S. (2019). Threat Fictions: Improv Games at the Edges of Security. Designing Interactive Systems (DIS '19). San Diego, CA. *Under review.*

Merrill, N., Chuang, J., & Cheshire, C. (2019). Sensing is Believing: What People Believe Sensors Can Reveal About Their Thoughts and Feelings. Designing Interactive Systems (DIS '19). San Diego, CA. *Under review.*

Merrill, N. & Chuang, J. (2019). Models of Minds: Sensing the Mind from Beyond the Brain. Computer Human Interaction Extended Abstracts (alt.chi '19). Glasgow, UK. *Under review.*

Pierce, J, Fox, S., **Merrill, N.** & Wong, RY. (2018). Differential Vulnerabilities and a Diversity of Tactics: What Toolkits Teach Us about Cybersecurity. Computer Supported Cooperative Work (CSCW '18). Jersey City, NJ.

Piplani, T., **Merrill, N.** & Chuang, J. (2018). Faking it, Making it: Fooling and Improving Brain-Based Authentication with Generative Adversarial Networks. Biometrics: Theory, Applications & Systems (BTAS '18). San Diego, CA.

Curran, MT., **Merrill, N.**, Gandhi, S. & Chuang, J. (2018). Exploring the Feasibility and Performance of One-Step Multi-Factor Authentication with Ear-EEG. Physiological Computing Systems (PhyCS '18). Seville, Spain. **Best student paper.**

Wong, RY., **Merrill, N.**, & Chuang, J. (2018). When BCIs have APIs: Design Fictions of Everyday Brain-Computer Interface Adoption. Designing Interactive Systems (DIS '18). Hong Kong, PRC. **Honorable mention.**

Pierce, J., **Merrill, N.**, Wong, RY., Fox, S. & Paulos, E. (2018). An Interface Without a User: An Exploratory Design Study of Online Privacy Policies and Digital Legalese. Designing Interactive Systems (DIS '18). Hong Kong, PRC.

McVeigh-Schultz, J., Márquez Segura, E., **Merrill, N.**, Isbister, K. (2018). What's It Mean to "Be Social" in VR?: Mapping the Social VR Design Ecology. Designing Interactive Systems (DIS '18) Companion. Hong Kong, PRC.

Merrill, N. & Chuang, J. (2018). From Scanning Brains to Reading Minds: Talking to Engineers about Brain-Computer Interface. Computer Human Interaction (CHI '18). Montreal, QC.

Merrill, N., Curran, MT. & Chuang, J. (2017). Is the Future of Authenticity All in Our Heads? Moving Passtoughts from the Lab to the World. New Security Paradigms (NSPW '17). Islamorada, FL.

Curran, MT., **Merrill, N.**, Chuang, J. & Gandhi, SJ. (2017). One-Step, Three-Factor Authentication in a Single Earpiece. ACM Conference on Ubiquitous Computing (UBICOMP '17). Maui, HI.

Merrill, N. (2017). Better Not To Know? The SHA-1 Collision Compute and the Limits of Polemic Computation. ACM Conference on the Limits of Computing (LIMITS '17). Santa Barbara, CA.

Merrill, N. & Cheshire, C. (2017). Trust Your Heart: Assessing Cooperation and Trust with Biosignals in Computer-Mediated Interactions. (CSCW '17). Portland, OR. **Honorable mention.**

Merrill, N., Wong, RY., Howell, N., Stark, L., Leahu, L. & Nafus, D. Interrogating Biosensing in Everyday Life. Designing Interactive Systems (DIS '16). Edinburgh, UK.

Merrill, N. & Cheshire, C. (2016). Habits of the Heart(rate): Interpreting and Acting on Biosignals in Risky Social Situations. ACM Conference on Supporting Groupwork (GROUP '16). Sanibel Island, FL.

Curran, M., Yang, JK., **Merrill, N.**, & Chuang, J. (2016). Passtoughts Authentication with Low Cost, In-Ear EEG. IEEE Engineering in Medicine and Biology Conference (EMBC '16). Orlando, FL.

Merrill, N., Curran, MT., Yang, J.K., & Chuang, J. (2016). Classifying Mental Gestures with In-Ear EEG. IEEE EMBS Body Sensor Networks (BSN '16). San Francisco, CA.

Merrill, N., Maillart, T., Johnson, B., Chuang, J. (2015). Improving Physiological Signal Classification Using Logarithmic Quantization & a Progressive Calibration Technique. Physiological Computing Systems (PhyCS'15). Angers, France.

Merrill, N., Foucault-Welles, B., Contractor, N. (2012). Network Factors Leading to Group Commitment in Second Life. 97th Annual NCA Conference, New Orleans, LA.

Journal articles

Merrill, N., Curran, MT., Gandhi, S., & Chuang, J. One-Step, Three-Factor Passthought Authentication with Custom-Fit, In-Ear EEG. *Frontiers in Neuroscience* (Under review).

Welles, B. F., Rouse, T., **Merrill, N.**, & Contractor, N. (2014). Virtually friends: An Exploration of Friendship Claims and Expectations in Immersive Virtual Worlds. *Journal for Virtual Worlds Research*, 7(2).

Invited talks

Merrill, N. Mind-Reading, Telepathy, and Other Stories From the Edges of Belief, Sensing, and Security (2018). Simon Fraser University. Vancouver, BC, Canada.

Merrill, N. Narratives and (Consumer) Brainscanning. (2017). Annual Meeting of the Society for the Social Study of Science (4S). Boston, MA.

Teaching

Fall 2018
UC Berkeley

Info 290: Research Design and Applications for Data Analysis
Instructor

Fall 2017
UC Berkeley

Info 290T: Mind Reading & Telepathy for Beginners & Intermediates
Instructor (with John Chuang)

Fall 2014
UC Berkeley

Info 213: User Interface Design
Teaching assistant

Fall 2015
UC Berkeley

Info 213: User Interface Design
Teaching assistant

Fall 2014
UC Berkeley

Info 290: Humans, Data, Sensors, Apps
“Hacker in residence”

Guest lectures

2016

Prototyping sensor-based applications
Berkeley Institute for Data Science (BIDS)

2015

The social life of physiological signals.
213: User Interface Design & Development

2015

Streams for the damned.
Sudo Room; Oakland, CA. [[repository](#)] [[video](#)]

2014

Distributed web architectures and social change.
290M: Information Access, School of Information.

Media coverage

Muse magazine. [Think your password: Devices that measure brainwaves make it possible.](#) March 2017.

Neo.life. [When computers read your mind, you'll need a great passthought.](#) July 15, 2017.

Techonomy. [Will your next password be a brainwave?](#) June 20, 2017.

CNet. Facebook's moonshots: [Making brains type and skins hear](#). April 19, 2017.

UC Berkeley ISchool News. [What happens when an app shares your biosignals?](#) March 3, 2017.

KRON4. [New brainwave reading tech from Cal Berkeley released](#). November 18, 2016.

IEEE Spectrum. [In-Ear EEG Makes Unobtrusive Brain-Hacking a Real Possibility](#). July 7, 2016.

CNET. [Use your eyes, voice -- and thoughts -- to replace passwords](#). July 4, 2016.

Tech Republic. [Is it time to replace passwords with passthoughts?](#) March 17, 2015.

Advising

Tanya Piplani (MIMS '19)

Monicah Wambugu (MSurvey)

Shrestha Mohanty (Microsoft)

Rexana Church (Visa)

Jong-Kai Yang (Yelp Security)

Eric Huynh (Google)

Industry positions

2017 [Unify.ID](#), AI Fellow

San Francisco, CA

Supervisor: Vinay Prabhu

2016 [Bio/Nano/Programmable Matter](#), Autodesk Research, Research Intern

Pier 9, San Francisco, CA

Supervisor: Florencio Mazzoldi

Software for self-assembling DNA nanostructures.

Open-source software (@[elsehow](#))

2017 [signal-protocol](#)

The signal cryptographic protocol (used in the Signal messenger app), for Node and web browsers ([github](#)).

2016 [aaronson oracle](#)

Press the 'f' and 'd' keys randomly. It's easy. Just use your "free will." ([github](#))

2016 [hyperreal](#)

Verified and encrypted communication over a distributed ledger.

2014 [dontcreeponme](#)

Pseudonymous, real-time chat, for anyone with a web browser. ([github](#))

2013 [clippy clippy](#)

A visual clipboard for the [monome](#).

Service

Workshops organized

- 2017 Co-chair, Biosensing in Everyday Life.
DIS 2017, Edinburgh, UK.
With Richmond Y Wong, Noura Howell, Lucian Leahu and Dawn Nafus
- 2017 Organizer, Sensing Subjectivities: Biosensing and Human/Machine Entanglements.
4S 2017, Boston, Massachusetts, USA.
With Dawn Nafus and Alex S Taylor.

Reviewing

- 2015-2018 Computer Human Interaction (CHI)
2015-2018 Computer Supported Cooperative Work (CSCW)
2016-2018 Designing Interactive Systems (DIS)
2017 IEEE Transactions on Information Forensics and Security
2017 Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)

Committees

- 2016 Faculty search committee, UC Berkeley School of Information
2016 PhD admissions committee, UC Berkeley School of Information
2015 PhD representative to faculty, UC Berkeley School of Information

Awards

- 2017 UC Berkeley Dissertation Completion Fellowship
2017 School of Information Summer Research Award
2017 Research Project Grant, Center for Long-Term Cybersecurity
2016 Research Project Grant, Center for Long-Term Cybersecurity
2016 Seed Grant for BioSENSE lab, Center for Long-Term Cybersecurity
2013 School of Information Doctoral Fellowship
2012 Undergraduate Research Grant