

# 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**  
Research Assistant (with Darren Gergle)
- 2010-2012   **SONIC, Northwestern University**  
Research Assistant (with Brooke Foucault Welles)

## Publications

### *Conference proceedings*

- Merrill, N.**, Weber, S. (2019). Threat Fictions: Speculative Games at the Edges of Security. *Computer Human Interaction (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, M.T., **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, M. & 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, M., **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, J.K., **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, M., 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*

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

<i>Fall 2018</i> UC Berkeley	<u><a href="#">Info 290: Research Design and Applications for Data Analysis</a></u> Instructor
<i>Fall 2017</i> UC Berkeley	<u><a href="#">Info 290T: Mind Reading &amp; Telepathy for Beginners &amp; Intermediates</a></u> Instructor (with John Chuang)
Fall 2014 UC Berkeley	<u><a href="#">Info 213: User Interface Design</a></u> Teaching assistant
Fall 2015 UC Berkeley	<u><a href="#">Info 213: User Interface Design</a></u> Teaching assistant
Fall 2014 UC Berkeley	<u><a href="#">Info 290: Humans, Data, Sensors, Apps</a></u> “Hacker in residence”

## Guest lectures

2016	<u><a href="#">Prototyping sensor-based applications</a></u> Berkeley Institute for Data Science (BIDS)
2015	<u><a href="#">The social life of physiological signals.</a></u> i299: Hacking Measurement, School of Information 213: User Interface Design & Development
2015	<u><a href="#">Streams for the damned.</a></u> Sudo Room; Oakland, CA. [ <a href="#">repository</a> ] [ <a href="#">video</a> ]
2014	<u><a href="#">Distributed web architectures and social change.</a></u> 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.
- Techrepublic. [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](#)).

2017      [signal-stream](#)  
Encrypt and decrypt Node streams using the Signal protocol.

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*

2015-2017 Computer Human Interaction (CHI)  
2015-2017 Computer Supported Cooperative Work (CSCW)  
2016-2017 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