

Nick Merrill

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Education

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

Publications

Conference proceedings

- Pierce, J, Fox, S, **Merrill, N.**, Wong, RY.. Differential Vulnerabilities and a Diversity of Tactics: What Toolkits Teach Us about Cybersecurity. Computer Supported Cooperative Work (CSCW '18). Jersey City, NJ. *To appear.*
- Piplani, T., **Merrill, N.**, Chuang, J. Faking it, Making it: Fooling and Improving Brain-Based Authentication with Generative Adversarial Networks. Biometrics: Theory, Applications & Systems (BTAS '18). San Diego, CA. *To appear.*
- Curran, M.T., **Merrill, N.**, Gandhi, S., Chuang, J. Exploring the Feasibility and Performance of One-Step Multi-Factor Authentication with Ear-EEG. Physiological Computing Systems (PhyCS '18). Seville, Spain. *To appear.*
- 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). St Sanibel Island, FL.

Curran, M., Yang, J.K., **Merrill, N.**, & Chuang, J. (2016). Passthoughts 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. Narratives and (Consumer) Brainscanning. (2017). Annual Meeting of the Society for the Social Study of Science (4S). Boston, MA.

Teaching

Fall 2017 UC Berkeley	<u>Info 290T: Mind Reading & Telepathy for Beginners & Intermediates</u> Instructor (with John Chuang)
Fall 2014 UC Berkeley	<u>Info 213: User Interface Design</u> Teaching assistant
Fall 2015 UC Berkeley	<u>Info 213: User Interface Design</u> Teaching assistant
Fall 2014 UC Berkeley	<u>Info 290: Humans, Data, Sensors, Apps</u> "Hacker in residence"

Guest lectures

2016	<u>Prototyping sensor-based applications</u> Berkeley Institute for Data Science (BIDS)
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- 2015 [The social life of physiological signals.](#)
i299: Hacking Measurement, School of Information
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.

Employment

- 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.
- 2012-2013 [Collablab](#), Northwestern University, Undergraduate Researcher
Evanston, IL
Supervisors: Patti Bao, Darren Gergle
- 2011-2012 [SONIC](#), Northwestern University, Undergraduate Researcher
Evanston, IL
Supervisor: Brooke Foucault-Welles

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