
Eleanor Birrell
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Education

- August 2018** ***Ph.D., Computer Science, Cornell University***
Thesis Title: A Reactive Approach for Use-based Privacy
Advisor: Fred Schneider
- May 2014** ***M.S., Computer Science, Cornell University***
Advisors: Fred Schneider, Rafael Pass
- June 2009** ***B.A. cum laude, Computer Science and Mathematics, Harvard University***
Thesis Title: Composition of Zero-Knowledge Proofs
Advisor: Salil Vadhan

Academic Positions

- 2018 - present** ***Assistant Professor, Department of Computer Science, Pomona College***
- 2021 - 2022** ***Visiting Professor, CyLab, Carnegie Mellon University***
- 2017 - 2018** ***Lecturer, Department of Computer Science, Cornell University***

Research

I work broadly in the area of usable security and privacy, often with a focus on the interactions between this area and psychology, philosophy, and law. My work investigates new approaches to understanding, expressing, and enforcing security and privacy informed by connections to other fields. Current projects include exploring how users think about privacy and about security decisions, investigating how users interact with privacy notifications and security features, and developing tools for enhancing user privacy and security online.

Publications

- A. Siebel and E. Birrell. Opt-out Assistant: Enhancing Privacy under CCPA. *In submission.*
- J. Tang, H. Shoemaker, L. Teffera, A. Rothschild, E. Birrell, and A. Lerner. Buying Privacy: User Perceptions of Data Collection by Mobile Apps. *In submission.*
- K. Katevas, E. Bagdasaryan, J. Waterman, M. Safadieh, E. Birrell, H. Haddadi, and D. Estrin. Policy-Based Federated Learning. *In submission.*
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- S. O'Connor, R. Nurwono, A. Siebel, and E. Birrell. (Un)clear and (In)conspicuous: The Right to Opt-out of Sale under CCPA. In *Workshop on Privacy in Electronic Society (WPES)*, 2021.
- A. DeGiulio, H. Lee, and E. Birrell. "Ask App Not to Track": The Effect of Opt-in Tracking Authorization on Mobile Privacy. In *4th Workshop on Emerging Technologies for Authorization and Authentication (ETAA)*, 2021.
- J. Tang, H. Shoemaker, A. Lerner, and E. Birrell. Defining Privacy: How Users Interpret Technical Terms in Privacy Policies. In *Privacy Enhancing Technologies Symposium (PETS)*, 2021.
- W. Guo, J. Rodolitz, and E. Birrell. Poli-See: A Visualization Tool for Privacy Policies. In *Workshop on Privacy in Electronic Society (WPES)*, 2020.
- E. Bagdasaryan, G. Berstein, J. Waterman, M. Griffith, E. Birrell, F. B. Schneider, N. Foster, D. Estrin. Ancile: A Practical System for Supporting Privacy-Aware Ubiquitous Computing Applications. In *Workshop on Privacy in Electronic Society (WPES)*, 2019.
- E. Birrell, A. Gjerdrum, H. Johansen, D. Johansen, R. van Renesse, and F. B. Schneider. SGX Enforcement of Use-based Privacy. In *Workshop on Privacy in Electronic Society (WPES)*, 2018.
- E. Birrell and F. B. Schneider. A Reactive Approach for Use-based Privacy. Technical Report 1813-54843. Cornell University. 2018.
- H. Johansen, E. Birrell, R. van Renesse, F. B. Schneider, M. Stenhaus, and D. Johansen. Enforcing Privacy Policies with Meta-Code. In *Asia-Pacific Workshop on Systems (APSys)*, pages 16:1-16:7, 2015.
- E. Birrell and F. B. Schneider. Fine-Grained User Privacy from Avenance Tags. Technical Report 1813-36285. Cornell University. 2014.
- E. Birrell and F. B. Schneider. Federated Identity Management Systems: A Privacy-based Characterization. *IEEE Security & Privacy*, Vol. 11(5), pages 36-48, Sept/Oct 2013.
- E. Birrell, K.-M. Chung, R. Pass, and S. Telang. Randomness-Dependent Message Security. In *Tenth IACR Theory of Cryptography Conference (TCC)*, pages 699-718, 2013.
- E. Birrell and R. Pass. Approximately Strategy-Proof Voting. In *International Joint Conferences on Artificial Intelligence (IJCAI)*, pages 67-72, 2011.
- E. Birrell and S. Vadhan. Composition of Zero-Knowledge Proofs with Efficient Provers. In *Seventh IACR Theory of Cryptography Conference (TCC)*, pages 572-587, 2010.

Program Committees

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| 2021 | Security/Privacy Committee --- Grace Hopper Celebration (GHC) |
| 2021 | Workshop on Foundations of Computer Security (FCS) |
| 2021 | USENIX Annual Technical Conference (USENIX ATC) |
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2020	Workshop on Privacy in Electronic Society (WPES)
2020	Security/Privacy Committee --- Grace Hopper Celebration (GHC)
2020	SoCal Celebration of Women in Computing (CWIC – SoCal)
2020	External Reviewer --- IEEE Computer Security Foundations Symposium (CSF)
2019	ACM Workshop on Programming Languages and Analysis of Security (PLAS)

Invited Talks

October 2021	<i>Prospect-Driven Usable Security and Privacy</i> CyLab Seminar, Carnegie Mellon University
April 2021	<i>Beyond the Ratio</i> Faculty Panel, Admitted Students' Weekend
February 2021	<i>Designing for Security</i> Code Jam, Whitney High School
February 2021	<i>Usable Security: Computer Science through a Liberal Arts Perspective</i> Ideas@Pomona, Family Weekend
June 2020	<i>Backstories: Professor Eleanor Birrell</i> Pomona College Sagecast
June 2019	<i>A Reactive Approach for Use-Based Privacy</i> CyLab Seminar, Carnegie Mellon University
May 2019	<i>Data Privacy for the 21st Century</i> Ideas@Pomona, Alumni Weekend
January - February 2018	<i>Use-Based Privacy</i> Colloquium Talk: Smith College, Santa Clara University, Swarthmore College, Wellesley College, Amherst College, Pomona College, UC San Diego, Harvey Mudd College
November 2017	<i>The Avenance Project</i> DataBox Symposium, London, England
September 2017	<i>SGX Enforcement of Use-Based Privacy</i> ASRG Seminar, Cisco, Morrisville, NC
August 2017	<i>SGX Enforcement of Use-Based Privacy</i> International Personal Data Systems Workshop, Sommarøy, Norway
September 2016	<i>Use-Based Privacy</i> International Personal Data Systems Workshop, Tromsø, Norway

March 2012 ***Approximately Strategy-Free Voting***
Cryptography Colloquium, Microsoft Research, Redmond, WA

Conference Presentations

September 2021 ***How do I opt out? Do Not Sell Mechanisms under CCPA***
International Workshop on Privacy Engineering, Online

July 2021 ***(Un)clear and (In)conspicuous: The Right to Opt-out of Sale under CCPA***
Workshop on Hot Topics in Privacy Enhancing Technologies (HotPETs), Online

October 2018 ***SGX Enforcement of Use-based Privacy***
Workshop on Privacy in Electronic Society, London, England

July 2011 ***Approximately Strategy-Proof Voting***
International Joint Conferences on Artificial Intelligence, Barcelona, Spain

February 2010 ***Composition of Zero-Knowledge Proofs with Efficient Provers***
Theory of Cryptography Conference, Zurich, Switzerland

Teaching

Spring 2019, Fall 2019,
Spring 2020, Fall 2020,
Spring 2021 ***Instructor, Department of Computer Science, Pomona College***
CS 105: Computer Systems

Fall 2018, Fall 2020 ***Instructor, Department of Computer Science, Pomona College***
CS 181S: System Security

Fall 2018, Spring 2019,
Fall 2019 ***Instructor, Department of Computer Science, Pomona College***
CS 51P: Introduction to Computer Science in Python

Spring 2018 ***Instructor, Department of Computer Science, Cornell University***
CS 5430: System Security

Spring 2017, Spring 2018 ***Instructor, Department of Computer Science, Cornell University***
CS 5431: Practicum in System Security

Fall 2017, Spring 2018 ***Instructor, Department of Computer Science, Cornell University***
CS 2110: Object-Oriented Programming and Data Structures
CS 2111: Programming Practicum

Awards and Honors

2021 ***Wig Distinguished Teaching Award***

2017 ***Outstanding Teaching Award***

Projects Supervised

Fall 2021 – Spring 2022	Senior Thesis Student: Erin Puckett Title: <i>Ransomware and International Relations</i>
Summer 2021	Summer Undergraduate Research Project Students: Eryn Ma and Sam Malik Title: <i>Prospect-driven Usable Security</i>
Summer 2021	Summer Undergraduate Research Project Students: Anzo DeGiulio and Hanoom Lee Title: <i>Opt-in Privacy for Mobile Apps</i>
Fall 2020 – Summer 2021	Senior Project Student: Aden Siebel Title: <i>Using a Browser Extension to Increase User Engagement with CCPA Data Rights Mechanisms</i>
Fall 2020 – Summer 2021	Senior Thesis Student: Jenny Tang Title: <i>TikTok, It's Threat to National Security O'Clock: Investigating the Effects of Securitizing Narratives on User Perceptions of Mobile Apps</i>
Spring 2021	Independent Study Students: Summer Hasama, Eryn Ma, and Eshaan Lumba Title: <i>Usable Security</i>
Summer 2020 - Spring 2021	Undergraduate Research Project Students: Hannah Shoemaker and Jenny Tang Title: <i>Defining Privacy: How Users Interpret Technical Terms in Privacy Policies</i>
Summer 2020	Summer Undergraduate Research Project Students: Sean O'Connor and Ryan Nurwono Title: <i>(Un)clear and (In)conspicuous: The right to opt-out of sale under CCPA</i>
Summer 2020	RAISE Project Student: Abigail Andrews Title: <i>Usable Security and Privacy</i>
Summer 2020	RAISE Project Student: Nathan Paik Title: <i>Data Analytics for Farm Optimization</i>
Summer 2020 - Spring 2020	Summer Undergraduate Research Project Student: Jenna Brandt Title: <i>Explainable Machine Learning and Data Analytics</i>

2018 - 2019	<p>Senior Project Student: Wentao Guo Title: <i>Transparency-Enhancing Tools for Ex-Ante Privacy</i></p>
2018 - 2019	<p>Senior Project Student: Rae Yan Yan Harris Title: <i>Spectre Attack</i></p>
Spring 2019	<p>Independent Study Students: Ethan Horton and Gianluca Minardi Title: <i>Software Engineering with iOS Development</i></p>
Spring 2019	<p>Independent Study Student: Jason Rodolitz Title: <i>Privacy and Transparency</i></p>
Spring 2017	<p>M.Eng. Project Students: Jacqueline Law, Nishad Mathur, Ning Wang, Zhan Zhao Title: <i>PostIt: A System for Secure Password Management</i></p>
Spring 2016	<p>M.Eng. Project Student: Andy Yi-Chun Huang Title: <i>Use-based Security for Mobile Health Apps</i></p>

Diversity and Outreach

Spring 2021 - present	<p>Pomona Black and Brown in CS (BBICS) (co-)Advisor Work with Yi Chen and with student leaders to found and advise a CS cohort for traditionally underrepresented students.</p>
2020 - 2021	<p>Division II DEI Faculty Cohort Member Participated in a reading and discussion group on how to improve Diversity, Equity, and Inclusion in STEM fields. Formulated recommendations for individual, departmental, and institutional changes to improve Pomona culture on these fronts.</p>
2018 - 2021	<p>Pomona College Organizer, Grace Hopper Celebration The Grace Hopper Celebration (GHC) is an annual conference for women in computer science; it includes technical sessions, professional development sessions, and career opportunities for women in computer science. Working with Melanie Wu, I organize and lead a trip for our female students to attend the conference.</p>
2010 - 2017	<p>Workshop Leader, Expanding Your Horizons Expanding Your Horizons (EYH) is a one-day conference for junior high girls that introduces them to different STEM fields through a series of hands-on workshops. As a graduate student, I designed and ran workshops that introduce these girls to different areas of computer science including programming (with Scratch) and networking (with paper airplanes).</p>
