MARCELA S. MELARA

http://masomel.info
Email: melara@cs.princeton.edu • GitHub: github.com/masomel

EDUCATION

Princeton University, Princeton, NJ
Doctor of Philosophy, Computer Science — Projected June 2019
Advisor: Michael J. Freedman

Master of Science in Engineering, Computer Science — June 2014
Thesis: "CONIKS: Preserving Secure Communication with Untrusted Identity Providers"
Advisors: Edward W. Felten, Michael J. Freedman

Hobart and William Smith Colleges (HWS), Geneva, NY
Bachelor of Science, summa cum laude, Computer Science — May 2012
Honors Thesis: "ELARA: Environmental Liaison and Automated Recycling Assistant", Advisor: John Vaughn.
Second Major in French and Francophone Studies. Minor in Physics.

RESEARCH INTERESTS

Computer Security, Operating Systems, Networked Systems.

ACADEMIC RESEARCH

Assistant in Research — Summer 2013, September 2014–present
Princeton University

- Lead project on designing a new sandboxing system to prevent data leaks from IoT devices.
- Co-lead project on developing a client-side tool for detecting malicious in-flight modifications to web pages.
- Lead research and development teams that design and build CONIKS, a practical key management system for end users that provides transparency and privacy; main maintainer for the CONIKS open-source software projects.

Summer Research Student — Summer 2010, Summer 2011
Hobart and William Smith Colleges

- Summer 2011: Designed a prototype software application for a networked recycling kiosk.
- Summer 2010: Implemented an educational processor with support for peripherals and an educational operating system using an FPGA.

INDUSTRY EXPERIENCE

Graduate Research Intern, Trusted Distributed Systems — June 2018–present
Intel Labs

- Design a novel memory isolation system for data processing applications using hardware-assisted techniques.

OS Security Engineering Intern, CoreOS Team — June 2015–September 2015
Apple Inc.

- Evaluated deployment of CONIKS as part of a large-scale system.

OS Security Engineering Intern, CoreOS Team — June 2014–September 2014
Apple Inc.

- Improved sandboxing technology in core operating system.

Race Committee Technical Intern — November 2010–April 2011
Seneca7

- Designed and built a web-based program to track the runners of the Seneca7 running relay race in real-time.
- Managed and supported the tracking program on race day.

TEACHING EXPERIENCE

Graduate Teaching Fellow Summer 2017–present
Princeton University, McGraw Center for Teaching and Learning
- Provide instructional consultation for TAs via classroom observations.
- Lead the new Assistant in Instruction Orientation, a day-and-a-half training for new Computer Science TAs.

Assistant in Instruction
Princeton University
- COS 461: Computer Networks Spring 2014
  Instructor: Prof. Michael Freedman
- COS 318: Operating Systems Fall 2013
  Instructors: Prof. Kai Li, Dr. Andrew Bavier

Physics Teaching Fellow Fall 2011–Spring 2012
Hobart and William Smith Colleges, Center for Teaching and Learning
- Held walk-in evening office hours for students taking Physics courses of any level.

Evening Teaching Assistant Fall 2010–Spring 2011
Hobart and William Smith Colleges, Dept. of Mathematics and Computer Science
- Held walk-in evening office hours for students taking introductory Computer Science courses.

Teaching Assistant
Hobart and William Smith Colleges, Dept. of Mathematics and Computer Science
- CPSC 124: Introduction to Programming Spring 2012
  Instructor: Prof. Carol Critchlow
- CPSC 124: Introduction to Programming Fall 2011
  Instructor: Prof. David Eck
- MATH 131: Calculus II Fall 2009
  Instructor: Prof. Kevin Mitchell

Undergraduate Students Mentored
- Jessica May, CRA-W Collaborative Research Experiences for Undergraduates Summer 2017
  Project: "Stormship: Smart Tool for Revealing Malicious Scripts Hidden in Plain Sites". Co-Mentor: Annie Edmundson, Advisor: Nick Feamster
- Huy Quoc Vu, Google Summer of Code Summer 2016
  Project: "CONIKS for Tor Messenger". Co-Mentor: Arlo Breault (The Tor Project)
- Michael Rochlin, Princeton University Spring 2015
  Junior Independent Work: "Coniks 2.0: Publicly Verifiable Keystore with Key Changing and Verifying Capabilities". Advisor: Ed Felten

PUBLICATIONS AND PRESENTATIONS

Marcela S. Melara. "Protecting the IoT Against Data Leaks through Intra-Process Access Control". *Student Presentation at National Security Institute Security and Privacy Day*, October 2017.

Marcela S. Melara. "Why Making Johnny's Key Management Transparent is So Challenging". *Post on Freedom To Tinker Blog*, March 2016.

Marcela S. Melara, Aaron Blankstein, Joseph Bonneau, Edward W. Felten, Michael J. Freedman. "CONIKS: Bringing Key Transparency to End Users". *USENIX Security Symposium*, August 2015.

Christian Eubank, **Marcela Melara**, Diego Perez Botero, Arvind Narayanan. "Shining the Floodlights on Mobile Web Tracking – A Privacy Survey". *IEEE Symposium on Security and Privacy Workshops, Web 2.0 Security and Privacy*, May 2013.

Marcela Melara. "Using FPGAs to Create a Complete Computer System for the Classroom". *Presentation at New York Celebration of Women in Computer Science*, April 2011.

Marc L. Corliss, **Marcela Melara**. "Vireos: an Integrated, Bottom-Up Educational Operating Systems Project with FPGA support". *ACM Technical Symposium on Computer Science Education*, March 2011.

HONORS AND AWARDS

Caspar Bowden Award for Outstanding Research in Privacy Enhancing Technologies	July 2017
Siebel Scholars Class of 2014	July 2013
Princeton University President's Fellowship	Fall 2012–Spring 2013
Student Travel Grants to SOSP 2013 and USENIX Security 2015	

UNDERGRADUATE HONORS AND AWARDS

Phi Beta Kappa	May 2012
Honors in Computer Science	April 2012
Dept. of Mathematics and Computer Science John S. Klein Prize	April 2012
Roderic '52 and Patricia '53 Ross Endowed Centennial Scholarship	Fall 2011–Spring 2012
Hai Timiai Women's Senior Honors Society	April 2011
Dept. of Mathematics and Computer Science William Ross Proctor Prize	April 2010
Phi Beta Kappa Book Award	April 2010
First Year Academic Achievement Award	April 2009
Dean's List	Fall 2008–Spring 2012

SERVICE AND EXTRACURRICULAR ACTIVITIES

Princeton FLIP Alliance student fellow	Fall 2018–present
Princeton CS Research Inclusion Social Event	Fall 2017–present
Princeton Computer Science Graduate Council	Spring 2016–Spring 2017
Princeton School of Engineering and Applied Sciences Recruiter, Grace Hopper Conference	October 2015
Siebel Scholars Regional Lead	Fall 2014–Spring 2016
Princeton Women in Computer Science	Fall 2013–Spring 2016
Women's Black Belt competitor, Princeton Taekwondo Team	Fall 2012–Spring 2014
HWS The Pitch Entrepreneurial Contest Finalist	February 2012
HWS Dept. of Physics Faculty Hiring Committee	Spring 2012
HWS Dept. of French and Francophone Studies Faculty Hiring Committee	Spring 2012
Association for Computing Machinery	June 2010–present
Games4Girls Computer Game Design Competition, Honorable Mention	April 2010
External Reviewer for WWW Conference 2015 and PoPETS 2018	

RELEVANT SKILLS

Programming Languages:

- Proficient: Java, C, Python
- Familiar: Go, C#, PHP, JavaScript, MySQL, Verilog, OCaml

Operating Systems: Ubuntu Linux, OS X, iOS, Windows

Relevant Graduate Courses: Information Security, Advanced Computer Networks, Privacy Technologies, Advanced Computer Systems, Analytics and Systems of Big Data, Surveillance and Countermeasures

Natural Languages: English (native), Spanish (native), German (native proficiency), French (conversational)