

ADAM HASTINGS

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EDUCATION

Ph.D., Computer Science, COLUMBIA UNIVERSITY **2018–June 2024**
Research area: Integrating costs of security with computer systems design *Advisor:* Dr. Simha Sethumadhavan

M.S., Electrical & Computer Engineering, BRIGHAM YOUNG UNIVERSITY **2016–2018**
Research area: Designing CAD tools for improving FPGA netlist security *Advisor:* Dr. Brad Hutchings

B.S., Computer Engineering, BRIGHAM YOUNG UNIVERSITY **2012–2016**
Minors: Computer Science, Mathematics (Distinguished Student Award)

WORK EXPERIENCE

Teaching Fellow, COLUMBIA UNIVERSITY, *Dept. of Computer Science* **2024–present**
I developed and taught a new graduate-level class titled “The Economics of Cybersecurity”. The class teaches computer scientists how to apply research methodologies from economics to problems facing computer security and systems. I created lecture materials, homework assignments, and mentored students on semester-long research projects.

Grad Research Assistant, COLUMBIA UNIVERSITY, *Computer Architecture Security Tech. Lab* **2018–present**
I research how to balance the costs of security (especially performance overheads) with traditional systems design requirements. My work quantifies security tradeoffs, applies economic modeling techniques to security, & solves security policy issues w/ technical solutions. I have presented my work at conferences & managed research interns.

Grad Teaching Assistant, COLUMBIA UNIVERSITY, *Dept. of Computer Science* **2019–2023**
TA’d Computer Architecture (3x, Head TA 2x), Hardware Security, Security I (all graduate-level). Responsible for tutoring, grading, creating assignments, and managing other TAs. Also TA’d Embedded Systems class at BYU.

Hardware Security Grad Intern, BLOOMBERG L.P., *CTO Security Group* **Summer 2021, 2022**
Built sandbox environment for cryptographic features on Bloomberg’s proprietary biometric hardware authenticator devices. Implemented features like hardware-backed certificate signing, signature verification, and key handling. Gained experience writing low-level embedded C for the FreeRTOS kernel. Used FIDO2 and U2F auth protocols.

SKILLS

- Software:** Experienced full stack engineer. Expert in C, C++, C#, Python, Java; fluent in Bash, MATLAB, JavaScript. I’ve written systems kernels, systems code (e.g. eBPF tools), desktop apps, and web apps. Significant experience w/ code optimization. Strong algorithm skills. Writes clean code & uses Git.
- Hardware:** Very strong in computer+FPGA architecture & systems design. Experienced w/ arch simulators + modeling. Fluent in (System)Verilog + VHDL & deploying to FPGAs. Experienced w/ embedded systems, microcontrollers, verification (OVM/UVM), circuits+microelectronics, PCB design.
- Security:** Very strong & varied security experience, including software security, hardware security, cryptography, security economics+policy. Current Columbia CTF team sponsor. Active in security community.
- AI/ML:** I use PyTorch & Tensorflow to train models for my research. Strong in applied stats + data analysis.
- Other:** Excellent written+verbal communication, & presentation skills. Great soft skills. A team player!

SELECT PUBLICATIONS

Architectural Security Regulation (Computer Architecture Letters 2023) **Hastings**, Piersma, Sethudmadhavan
How Much is Performance Worth to Users? (Computing Frontiers 2023) **Hastings**, Chilton, Sethudmadhavan
Revisiting Residue Codes for Modern Memories (MICRO’22/IEEE Top Picks) Manzhosov, **Hastings**, et al.
A New Doctrine for Hardware Security (ASHES 2020) **Hastings**, Sethudmadhavan
Using Physical and Functional Comparisons to Assure 3rd-Party IP (IVSW 2018) **Hastings**, Jensen, et al.