ADAM HASTINGS

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EDUCATION

Ph.D., Computer Science, Columbia University (GPA: 4.1) **2018–August 2024**
Research area: Computer Architecture, Computer Security, Agent-Based Modeling + Simulation *Advisor:* Dr. Simha Sethumadhavan

M.S., Electrical & Computer Engineering, Brigham Young University (GPA: 4.0) **2016–2018**
Research area: Designing CAD tools for improving FPGA netlist security *Advisor:* Dr. Brad Hutchings

B.S., Computer Engineering, Brigham Young University (GPA: 3.6) **2012–2016**
Minors: Computer Science, Mathematics (Distinguished Student Award)

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: 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: Strong and 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!

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.

SELECT PEER REVIEWED PUBLICATIONS

Architectural Security Regulation ..... IEEE Computer Architecture Letters, 2023
How Much is Performance Worth to Users? ..... ACM Computing Frontiers, 2023
Revisiting Residue Codes for Modern Memories ..... IEEE/ACM MICRO (IEEE Top Picks winner), 2022
A New Doctrine for Hardware Security ..... ACM Attacks and Solutions in Hardware Security (ASHES), 2020
Using Physical and Functional Comparisons to Assure 3rd-Party IP ..... IEEE IVSW, 2018