ADAM HASTINGS

✉ hastings@cs.columbia.edu | New York, NY | cs.columbia.edu/∼hastings
github.com/adamhastings | 1-925-822-2546 | linkedin.com/in/a-hastings

EDUCATION

PhD, Computer Science, Columbia University in the City of New York **2018–Sept. 2024**
Research area: Computer Architecture + Security, Agent-Based Modeling + Simulation. GPA: 4.1 *Advisor:* Prof. Simha Sethumadhavan

MS, Electrical & Computer Engineering, Brigham Young University **2016–2018**
Research area: Designing software tools to verify integrity of FPGA netlists. GPA: 4.0 *Advisor:* Prof. Brad Hutchings

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

SKILLS

Software: Full stack engineer. Expert in C, C++, Python. Fluent in Java, C#, Bash, MATLAB, JavaScript, SQL. Experienced with high-performance computing, embedded systems, multithreading, cloud computing, operating systems, real-time systems, desktop + web apps. Strong algorithmic skills. Git user.

Hardware: Expertise in computer architecture and FPGAs. Fluent in Verilog, SystemVerilog, VHDL. Experienced with microcontrollers, SoC design, architecture simulators (gem5), DRAM + memory controllers, digital arithmetic. Some experience with hardware verification (UVM), analog circuits, PCB design.

Security: Strong and diverse security experience, including software security, hardware security, cryptography, security economics + policy. Current Columbia CTF team sponsor. Active in security community.

AI/ML: Experienced in training machine/deep learning models (PyTorch, TensorFlow, STAN, scikit-learn)

Other: Mathematica, Excel, LaTeX. Excellent written + verbal communication. Excellent presentation skills.

WORK EXPERIENCE

Teaching Fellow, Columbia University, *Dept. of Computer Science* **2024–present**
Developed and taught a new graduate-level course "The Economics of Cybersecurity" that teaches CS students how to apply research methodologies from Economics to problems facing computer security. Created syllabus, reading lists, and homework assignments, delivered lectures, and mentored students on a semester-long research project.

Grad Research Assistant, Columbia University, *Computer Architecture Security Tech. Lab* **2018–present**
Researched how to balance the tradeoffs between computer security and performance: I built distributed software (C++, Python, JS, Bash, PHP, 10k LoC) to experimentally determine the dollar value of performance; I developed deep learning models (PyTorch, C, 10k LoC) to measure runtime security overheads; I built a stochastic dynamical systems simulator (C++, Python, 10k LoC) to model economically rational game-theoretic agents. Managed 3 interns.

CTO Security Architect Intern, Bloomberg L.P., *CTO Security Group* **Summer 2021, 2022**
Built embedded platform (C, FreeRTOS, Python, 10k LoC) on biometric authentication device to provide testbench for applied cryptography functionality. Conducted vulnerability research on auth standards (FIDO2, U2F). Added security features (C, Python, 5k LoC) to production codebases. Researched open source hardware authenticators.

Grad Teaching Assistant, Columbia University, *Dept. of Computer Science* **2019–2023**
Head TA for Computer Architecture (3x), Hardware Security, Security I (grad level), Intro to Embedded Systems, Embedded Linux Systems (undergrad level). Led recitation sessions, graded assignments, and managed other TAs.

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