Miles Dai

100 Memorial Drive, Apt 8-7A, Cambridge, MA 02142
(317) 480-9553 · milesdai@mit.edu · milesdai.github.io

Education

Massachusetts Institute of Technology **Cambridge, MA**
Candidate for Master of Engineering in Electrical Engineering and Computer Science; GPA: 5.0/5.0 *expected June 2021*
Bachelor of Science in Electrical Engineering and Computer Science; GPA: 4.8/5.0 *June 2020*

- Concentration: Computer Systems, Security
- Relevant Coursework: Secure Hardware Design (TA), Computer Systems Security, Operating Systems, Computer Networks, Digital Systems Lab, Power Electronics Lab, Feedback System Design

Professional and Project Experience

Computation Structures Group/Architecture Security Group, MIT CSAIL **Cambridge, MA**
Graduate Student Researcher *May 2020 - present*

- Studying Network-on-Chip-based side-channel attacks on Intel Skylake/Cascade Lake processors

Digital Systems Lab, MIT 6.111 **Cambridge, MA**
FPGA RFID Utility *October 2019 - December 2019*

- Created a device to read, record, and spoof RFID access control cards on a Xilinx Artix-7 FPGA

Amazon Web Services **East Palo Alto, CA**
Software Engineering Intern *June 2019 - August 2019*

- Created software to optimize deep learning model execution for various hardware architectures (e.g. Intel, ARM, Nvidia)
- Added Keras support to the customer-facing, core AWS SageMaker Neo service, providing the ability for users to achieve over 2x increases in inference speed on ARM and Intel processors

Affective Computing Group, MIT Media Lab **Cambridge, MA**
Undergraduate Researcher *May 2017 - May 2018*

- Applied computer vision techniques and deep neural networks to predict the engagement levels of autism-spectrum patients on a per-patient basis to improve the effectiveness of autism therapy
- Publication: O. Rudovic, J. Lee, **M. Dai**, B. Schuller, R. W. Picard, "Personalized machine learning for robot perception of affect and engagement in autism therapy", *Science Robotics*, 27 Jun 2018: Vol. 3, Issue 19, eaao6760

Distributed Robotics Lab, MIT Computer Science and Artificial Intelligence Laboratory **Cambridge, MA**
Undergraduate Researcher *January 2017 - May 2017*

- Prototyped a spherical, auxetic robot module to help streamline the robot design and fabrication process through the use of modular components and a network of Texas Instruments MSP430 microcontrollers

Teaching Experience

6.888 - Secure Hardware Design, Teaching Assistant **MIT, Fall 2020**

- Developed a lab for students to exploit cache-based side-channel vulnerabilities on Intel Xeon processors

6.004 - Computation Structures, Teaching Assistant **MIT, Spring 2020**

- Helped over 200 students build a five-stage RISC-V processor in Bluespec System Verilog

6.002 - Circuits and Electronics, Lab Assistant **MIT, Fall 2018-Fall 2019**

- Developed a lab in which students explore the RFID technology used in MIT's card access control system

Leadership and Volunteering

Next Make, President **2016-2020**

- Programmed games in C for an ATtiny microcontroller as part of a circuit board soldering activity for 50 MIT freshmen

MIT Science Olympiad, Planning Committee **2016-present**

- Organize an annual Science Olympiad tournament at MIT for over 1,000 high school students

Skills & Interests

Programming Languages: Python, C, Java, MATLAB, HTML, CSS, JavaScript with D3.js, SystemVerilog
CAD/Digital Fabrication: Solidworks, EAGLE, Laser cutting, 3D printing, waterjet, mill