JADE PHILIPOOM

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Education

Massachusetts Institute of Technology

PhD, Computer Science — begun September 2018
MEng, Computer Science — February 2018, GPA 5.0/5
BS, Computer Science; Mathematics minor — June 2017, GPA 4.9/5

Experience

Google, Inc - Software Engineering Intern — Spring 2018

Formally verified subroutines of cryptographic code for a custom 2FA device

- *Modified an MIT research prototype to generate a specialized ISA*
- *Discovered a new proof for previously-unjustified optimization of a common algorithm*

Amazon - Research Scientist Intern — Summer 2017

Analyzed security properties of AWS Key Management Service

- *Set up automatic dataflow analysis to detect key leaks and wrote a model of the system's cryptographic steps*

MIT Electrical Engineering and Computer Science - Teaching Assistant — Spring 2017

Assisted for "Fundamentals of Programming", a sophomore-level programming course

- *Helped design, write, and test assignments; assisted students at office hours; coordinated with course staff*

MIT CSAIL - Undergraduate Researcher — Fall 2015-Fall 2016

Contributed to the design and development of a verified cryptography implementation

- *Synthesized efficient elliptic curve cryptography code in the Coq proof assistant along with a 4-person team*

Google, Inc - Engineering Practicum Intern — Summer 2015

Designed, built, and extended a framework to manage server monitoring information

- *Implemented a new system to dynamically read configuration data from unspecified protocol buffers*

Shell Technology Centre - Software Engineering Intern — Summer 2014

Designed and developed multiple data visualization tools to accompany an R&D project

- *Proposed, designed, and produced JavaScript animation module to improve performance on slow connections*

MIT Media Lab - Undergraduate Researcher — Spring 2014

Created maps for StreetScore, an interactive display for data about street safety (streetscore.media.mit.edu)

- *Served custom map tiles using raw OpenStreetMap geodata and open-source geo tools such as Mapnik*

MITRE Corporation - Software Engineering Intern — Summer 2012, 2013

(2013) With a team, developed a system using Python and PostgreSQL to collect network security data
(2012) Created a database for U.S. Central Command to keep track of a complex inventory system

- *Project saved millions of dollars annually, earning the MITRE Spot Award (rarely awarded to interns)*

Awards and Publications

NSF Graduate Research Fellowship	2018
First Place Charles and Jennifer Johnson Computer Science MEng Thesis Award	2018
Anna Pogosyants UROP Prize for Outstanding Undergraduate Research Project in Computer Science	2017
National Merit Scholarship	2013
MITRE Spot Award	2012

Andres Erbsen, Jade Philipoom, Jason Gross, Robert Sloan, and Adam Chlipala.
Simple High-level Code for Cryptographic Arithmetic – with Proofs, without Compromises.
In *Proceedings of the 40th IEEE Symposium on Security and Privacy* (S&P'19), May 2019. View

Jade Philipoom. "Correct-by-construction Finite Field Arithmetic in Coq" (Master's thesis). February 2018. View

Programming Languages

Proficient - Coq, Python, Java, git, Javascript
Working Knowledge - Go, LaTeX, HTML, C, C++, x86 assembly