

This form is to be completed by EECS graduate students upon submission of a doctoral thesis to the department.  
**Please attach a CV or resume...thank you.**

STUDENT NAME:

CITIZENSHIP (circle) ☐ United States ☐ OTHER:

AREA (circle): ☐ EE ☐ or ☐ CS

DATE of THESIS SUBMISSION:

THESIS SUPERVISOR(S):

DATE of MIT DEGREE LIST:

Please notify us of your immediate future plans, by responding to the questions below:

1. Please check the type of job you are taking within the following broad categories:

Academic/faculty position

Academic/researcher

Academic/postdoc

Industry

Government

Medical

Financial

Management Consulting

Self-Employed

Other

Un-Employed

2.

If you can let us know specifically where you are going, that would be most helpful:

Institution:

Title:

Location of Employment:

3. Check the area within EECS that best describes your area of employment:

Communications

Systems, Decision and Control

Signal Processing

Bioelectrical/Medical Engineering

Circuit Design

Devices and Materials

Electromagnetics and Energy

Artificial Intelligence/Robotics

Hardware/ Architecture

Numerical Analysis/Scientific

Programming Language/Compilers

OS/Networks

Software Engineering

Theory/ Algorithms

Graphics/Human Interface

Database/Information Systems

Other:

**THANK YOU, and ALL GOOD WISHES!**



# Jason Gross

[github.com/JasonGross](https://github.com/JasonGross)  
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## ADDRESS

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## CONTACT

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## RESEARCH INTERESTS

Programming Languages, Formal Verification, Performance of Automation in Interactive Proof Assistants, Homotopy Type Theory, Category Theory, Program Synthesis, Cryptography

## KEY CONTRIBUTIONS

Fiat Cryptography

- Collaboratively working on one of the world's first algorithm-level-optimizing compilers
- Collaboratively implemented proven-correct cryptographic code now used by Google Chrome, and in the majority of secure connects from web browsers

Interactive Proof Assistants

- Researching performance issues that impact scalability of automated verification
- Reporting the plurality of bugs in the proof assistant Coq

## EDUCATION

**Massachusetts Institute of Technology**

2013–2021

PhD in Computer Science

Cambridge, MA

Advisor: Adam Chlipala

*Thesis: Performance Engineering of Proof-Based Software Systems at Scale*

*MA Thesis: An Extensible Framework for Synthesizing Efficient, Verified Parsers*

**Massachusetts Institute of Technology**

2009–2013

BS in Mathematics and Physics

Cambridge, MA

GPA: 4.6/5

## INTERNSHIPS

**Machine Intelligence Research Institute**

June 2019–August 2019

*Type Theory Intern*

Berkeley, CA

- Worked on formalizing type theories and on proving things within proof assistants

**Google**

June 2018–August 2018

*Software Engineering Intern*

Cambridge, MA

- Worked with BoringSSL on integration of proven-correct low-level ECC primitives into Chrome

**Google**

June 2016–September 2016

*Software Engineering Intern*

Mountain View, CA

- Formalized low-level ECC primitives with proofs of correctness

**Microsoft Research**

June 2014–August 2014

*Intern*

Cambridge, United Kingdom

- Created a language for specifying input/output behavior of x86 assembly programs with Andrew Kennedy and Nick Benton; Verified the I/O behavior of a number of simple programs
- Improved automation of the x86proved library

**MIT CSAIL**

April 2012–June 2014

*Researcher*

Cambridge, MA

- Entered a significant amount of category theory into the automated proof assistant Coq (<https://github.com/HoTT/HoTT/tree/master/theories/Categories>)
- Made progress towards an interface for databases and database migration on top of category theory in Coq with David Spivak and Adam Chlipala

**MIT CSAIL**

November 2009–September 2011

*Researcher*

Cambridge, MA

- Designed from scratch a data collection webpage, collected data for, and helped with research of Brenden Lake, Ruslan Salakhutdinov, and Josh Tenenbaum, on categorical and transfer learning.

**Commack High School**

Fall 2006–Summer 2009

*Independent Researcher*

Commack, NY

- Independently researched circuits over sets of natural numbers for three years.
- Won fourth place award in mathematics in ISEF (Intel International Science and Engineering Fair) in 2009, third place award in ISEF 2008.

**COMPUTER SKILLS**

- Proficient skills – Coq, Mathematica, git, Python, JavaScript, BASIC
- Working knowledge – C, C++, Agda, OCaml, Haskell, Scheme, HTML, CSS, Perl, Java
- Basic knowledge – Matlab, Idris, Ruby, Ur/Web, x86 Assembly

**TEACHING**

- Instructor at Monsoon Math: Classes on category theory, linear logic, and Löb's theorem
- TA for 6.172 (Performance Engineering): Led recitations, analyzed and explained assembly output of `gcc -O3` to teach vectorization
- TA for 8.012 (Physics I) and 8.022 (Physics II) in Experimental Study Group
- Volunteer for MIT ESP: Classes on  $\text{\LaTeX}$ , philosophy, linear algebra, and quantum mechanics

**EXTRACURRICULAR ACTIVITIES**

- Co-maintainer of the homotopy type theory Coq repository (HoTT/HoTT on GitHub)
- MIRI Decision Theory Workshop Attendee: Formalized various versions of Löb's theorem in Agda and Coq
- Committer to the SIPB BarnOwl project (<https://barnowl.mit.edu>)
- SIPB (Student Information and Processing Board) Member
- Canada/USA Mathcamp (Summers 2006–2009)

**SELECTED PRESENTATIONS AND PUBLICATIONS**