

# Katherine Ye

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- EDUCATION**      **Ph.D. in Computer Science, Carnegie Mellon University** (2016–?)  
**A.B. Computer Science, Princeton University** (2012–2016)
- HONORS**      Computing Research Association (CRA) Outstanding Undergraduate Researcher Award      2016  
Google Anita Borg Scholarship (1 of 30 in North America)      2016  
ARCS Fellowship (1 of 2 first-years in the CS department)      2016  
Honorable mention, NSF Graduate Research Fellowship      2016  
Outstanding Work Award, Princeton Creative Writing Program      2014
- PUBLICATIONS**      **Verified correctness and security of mbedTLS HMAC-DRBG**  
**Katherine Ye**, Matthew Green, Naphat Sanguansin, Lennart Beringer, Adam Petcher, and Andrew W. Appel.  
*In submission.*
- The end of history? Using a proof assistant to replace language design with library design**  
Adam Chlipala, Benjamin Delaware, Samuel Duchovni, Jason Gross, Clément Pit-Claudel, Sorawit Suriyakarn, Peng Wang and **Katherine Ye** (alphabetical).  
*In SNAPL (The Summit on Advances in Programming Languages) '17.*
- Designing extensible, domain-specific languages for mathematical diagrams**  
**Katherine Ye**, Keenan Crane, Jonathan Aldrich, and Joshua Sunshine.  
Talk proposal for current work appearing in *Off the Beaten Track '17.*
- Verified correctness and security of OpenSSL HMAC**  
Lennart Beringer, Adam Petcher, **Katherine Ye**, and Andrew W. Appel.  
*In USENIX Security '15.*
- TALKS**      **PROCESS: desire paths in creative interfaces**  
Experimental talk given at Y Conf, a conference hosted by Y Combinator Research.      2017
- Proof assistants as a tool for thought**  
Talk given at the Tools for Thought workshop, hosted by the Recurse Center.      2016
- Strange loops: powerful knot notations**  
Industry conference talk on insights encoded in Conway’s knot notation.  
*Reviewed by Prof. Philip Wadler:* “In my series of favourites from Strange Loop 2015... Great fun for anyone interested in how to describe complex situations, and which programming language aficionado can resist that?”
- Proofs about programs, proofs as programs, programs as proofs!**      See website  
Lightning talk on proving code “equal” in Coq.      !!con, 2014
- EXPERIENCE**      **Software Engineering Intern**      Summer 2017  
*Google Brain, Distill team*  
    ◊ Distill is a journal of machine learning that is dedicated to presenting clear explanations of research in a modern medium. <https://distill.pub/about/>  
    ◊ I designed and built novel interactive visualizations of mathematical ideas for an upcoming Distill article. This article was written in collaboration with a professor at the University at Toronto and two research scientists at Google Brain.
- Software Engineering Intern**      Summer 2014  
*Facebook, Search team*  
    ◊ Visualized pairwise correlations between features in Facebook’s machine learning models.

- ◇ Derived algorithm to calculate the matrix incrementally in backend; implemented querying interface in frontend.
- ◇ Found unexpected correlations between features in important Facebook search verticals.

**Recurser** Summer 2013  
*The Recurse Center (A three-month, full-time “writers’ retreat for programmers”)*

**SERVICE** CMU REU Program in Software Engineering, Admissions Committee 2017  
SCS Dean’s PhD Student Advisory Council 2017  
Founder and co-president, Open Source at Princeton 2013–2015

**ADVISING** Mentored Nimo Ni, an undergraduate intern, as part of a CMU REU program.

**PRESS** **Princeton.edu**, *Ambitious vision for computer science drives Princeton senior Ye’s research success* (2016)  
**BLDGBLOG**, *Directions might not terminate* (2016)