# Alexa VanHattum

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## Research Interests

Programming languages, compilers, formal methods, distributed systems

## Education

Fall 2018–Present **Cornell University** | Ph.D. Student, Computer Science | GPA: 4.00

2012–2016 **Brown University** | B.Sc., Computer Science | GPA: 3.80

Anita Borg Scholar for Grace Hopper Celebration of Women in Computing
Honorable Mention: Senior Prize in CS

## Research Experience

Fall 2018–Present **Cornell University**, Graduate Research
Advisor: Adrian Sampson
Creating a constraint-based (Z3/Satisfiability Modulo Theories) compiler
for spatial, heterogeneous computer architectures.

Spring 2016 **Brown University**, Independent Study in Programming Languages
Advisor: Shriram Krishnamurthi (Abstract)
Analyzed matrix arithmetic in the R programming language as a group
research capstone. Used refinement types in Liquid Haskell to statically
surface matrix manipulation errors and warnings.

Summer 2014 **The University of Toledo**, Physics NSF REU Intern
Advisor: Jaques G. Amar (Abstract)
Implemented kinetic Monte Carlo simulations of particle island nucleation
on thin films. Ran simulations on the Ohio Supercomputer Center's clus-
ters, implemented Union-Find for dynamic island-counting.

## Industry Experience

2016–2018 **Apple**, Health Software Engineer
Lead app/database engineering for the first FDA-regulated atrial fibrilla-
tion notification feature. Contributed to the HealthKit framework. Pre-
sented *What's New in Health* at Apple's 2017 WWDC conference.

Summer 2015 **Microsoft**, Software Engineering Intern
Created a message search feature for the Windows Messaging Application.

## Teaching Experience

Fall 2018 **Programming Languages & Logics**, Cornell University, Graduate TA
*Outstanding Teaching Assistant Award* from Cornell CS

Spring 2016 **Logic for Systems**, Brown University, Head TA

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| Fall 2017 | **Intro. Object-Oriented Programming**, Brown University, Head TA |
| Spring 2015 | **Discrete Structures & Probability**, Brown University, TA |
| Fall 2014 | **Intro. Object-Oriented Programming**, Brown University, TA |
| Spring 2014 | **First Byte of Computer Science**, Brown University, TA |

**Service & Outreach**

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| Spring 2019 | **Cornell CS PhD Visit Day**, Co-organizer, >100 visiting students |
| Spring 2019–Present | **Cornell CS Colloquium,** Student host for visiting speakers |
| Spring 2019 | **Cornell Girls' Adventures in Math**, Student volunteer |
| 2017–Present | **Double Union**, Voting member for non-profit feminist hacker/maker space |
| 2016–2017 | **Apple Women in Science and Engineering Mentoring**, Mentor |
| 2014–2016 | **Brown Women in Computer Science**, Mentor |
| 2012–2014 | **Brown Algebra in Motion**, Site leader, math tutor at local high school |

**Skills**

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| Languages & Tools | OCaml, Z3, Alloy Analyzer, Python, Go, Objective-C, Pyret, Racket/Scheme, C, Haskell, Java |
| Interests | Feminism, philosophy, equestrian sports (NCAA varsity athlete at Brown) |