

# DANIEL MILLER

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## Summary

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Math Ph.D. candidate working on a M.S. in Computer Science. Have experience developing scalable algorithms in a team environment, visualizing complex data, and communicating ideas to a diverse audience. Have constructed sophisticated multidimensional objects and analyzed their statistical properties as a mathematician, and also led the creation of a lightweight, distributed, cloud-hosted website. Currently looking for positions that involve leveraging mathematical skills to understand real-world data sets in a fast-paced environment.

## Education

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### PH.D. IN MATHEMATICS, CORNELL UNIVERSITY

August 2012–May 2017

- Won the Eleanor Norton York Award for excellent collaboration and rapid research progress.

### M.S. IN COMPUTER SCIENCE, CORNELL UNIVERSITY

August 2015–May 2017

- Managed the creation of a location-centric auction site written in C# and hosted on Azure.
- Achieved 20ms response rate at up to 2K requests per second distributed over 10 servers.
- Collaborated in writing a CPU scheduler and gossip-based networking protocol in C.

### B.S. IN MATHEMATICS, UNIVERSITY OF NEBRASKA OMAHA

August 2009–August 2012

- Minored in Computer Science, graduated *summa cum laude*, GPA 4.0.
- Dean's List all semesters, Highest Honors in Mathematics, with senior thesis.
- Designed and wrote a compiler for a C-family programming language in Standard ML.

## Research

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### PH.D. RESEARCH, CORNELL UNIVERSITY

August 2013–May 2017

- Developed and implemented new algorithms for computing statistical fitness of large data sets.
- Discovered mathematical application of previously unused techniques for numerical integration.
- Proved precise connections between apparently unconnected topics (discrepancy and Dirichlet series).
- Demonstrated computability of “torsion classes,” a highly abstract theoretical construct.

### ARIZONA WINTER SCHOOL, UNIVERSITY OF ARIZONA

May 2013–2016

- Mastered concepts, ran simulations, and proved theorems in a high-intensity one week program.
- Collaborated with a diverse team to develop and present new mathematics quickly.

### SUMMER MATHEMATICS INSTITUTE, CORNELL UNIVERSITY

Summer 2011

- Created and visualized a high-dimensional example that disproved a conjecture.
- Coauthored *Strongly non-embeddable metric spaces*. *Topology Appl.* **159** (2012), no.3, 749–755.
- Coauthored *Polygonal equalities and virtual degeneracy in  $L_p$  spaces*. *J. Math. Anal. Appl.* **415** (2014), no.1, 247–268.

## Leadership

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**Teaching Assistant**, *Cornell University*. Coordinated logistics, teaching, and grading for a course with 300 students, 12 faculty, and 12 undergraduate assistants. Assisted in teaching mathematics at undergraduate and graduate levels.

**Resident Assistant**, *Chesterton House*. Directed event-planning, recruitment, and finances for an academic living center.

## Skills

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**Programming:** C#, Python, Java, ASP.NET, C, Sage, and  $\text{\LaTeX}$ .

**Web:** Azure, Amazon Web Services, HTML, CSS, and Vsync.