Daniel Miller

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Summary

Math Ph.D. candidate at Cornell doing research in computational and statistical aspects of algebraic number theory. Work in bursts, beginning with focused reading of the top current research, followed by test computations in Python or C and discussion of "toy cases" with colleagues, and constructing a new theoretical setting that generalizes current work, and proving results in this new setting. Also have experience leading the creation of a scalable, distributed back-end for an Azure-hosted website.

Education

Cornell University *Ithaca, NY*

PH.D. IN MATHEMATICS *August 2012–May 2017*

- Coordinated logistics, teaching, and grading for a course with 300 students and 12 faculty.
- Assisted in teaching classes at undergraduate and graduate levels.
- Won the Eleanor Norton York Award for excellent collaboration with fellow students.

Cornell University *Ithaca, NY*

MASTER'S IN COMPUTER SCIENCE *August 2015–May 2017*

- Managed the creation of a location-centric auction site written in C#, using the ASP.NET framework. Ported it to Microsoft's Azure, and tested it for scalability to 2K requests per second.
- Collaborated in writing a CPU scheduler and gossip-based networking protocol in C.

University of Nebraska Omaha *Omaha, NE*

B.S. IN MATHEMATICS *August 2009–August 2012*

- Minored in Computer Science, graduated *summa cum laude*, with Highest Honors in Mathematics.

Research Experience

Computational statistics of elliptic curves

CORNELL UNIVERSITY (PHD)

- Developing and implementing new techniques for computing the *G*-star discrepancy, used in numerical integration.
- Creating sample data to disprove a conjecture on the discrepancy of data coming from elliptic curves.
- Proving precise connections between discrepancy of a sequence and analytic properties of an associated *L*-function.

Arizona Winter School

UNIVERSITY OF ARIZONA

- Wrote scalable code to test a new version of the Lang–Trotter conjecture on large datasets.

Summer Mathematics Institute

CORNELL UNIVERSITY (UNDERGRADUATE)

- With A. Weston, C. Kelleher, and T. Osborn, created a high-dimensional example that disproved a conjecture.
- *Strongly non-embeddable metric spaces*. Topology Appl. **159** (2012), no.3, 749–755.
- *Polygonal equalities and virtual degeneracy in L_p spaces*. J. Math. Anal. Appl. **415** (2014), no.1, 247–268.

Skills and Activities

Programming: C#, Java, Python, ASP.NET, C, Sage, and LaTeX.

Resident Assistant *Ithaca, NY*

CHESTERTON HOUSE *August 2013–May 2014*

- Coordinated events, finances, and recruiting for a living center.