Daniel K. **Miller**

MATHEMATICIAN — DATA SCIENTIST

☐ (+1) 402-512-4475 | ✉ daniel.keegan.miller@gmail.com | 🔗 linkedin.com/in/daniel-miller

Summary

My current work is on the statistical properties of the Satake parameters of elliptic curves and abelian 2-folds. The Sato–Tate conjecture (now proved by Taylor et. al.) states that the Satake parameters are equidistributed with respect to the Sato–Tate measure. Akiyama and Tanigawa made a conjecture on the precise nature of this distribution—namely a bound on the star-discrepancy of the sequence of Satake parameters. I have generalized this conjecture to arbitrary motives, and am proving a tight web of implications between variants of this conjecture and the analytic properties of a curious class of L-functions. I am also developing new techniques for the fast computation of star-discrepancy with respect to measures with non-convex CFDs.

Education

Cornell University   *Ithaca, NY*
PH.D. IN MATHEMATICS   *August 2012–May 2017*
- Eleanor Norton York Award.

Cornell University   *Ithaca, NY*
MASTER'S IN COMPUTER SCIENCE   *August 2015–May 2017*

University of Nebraska Omaha   *Omaha, NE*
B.S. IN MATHEMATICS   *August 2009–July 2012*
- Minor in Computer Science.
- Graduated *summa cum laude*, with Highest Honors in Mathematics.
- Computed difficult counterexample in complex analysis with Valentin Matache under Kerrigan Research Minigrants Program.
- Research on Hopf–Galois theory with Griff Elder under the FUSE grant.
- Research in Nonlinear Functional Analysis with Anthony Weston at Cornell's Summer Mathematics Institute.

Publications

Casey Kelleher, Daniel Miller, Trenton Osborn, and Anthony Weston. Strongly non-embeddable metric spaces. *Topology Appl.*, 159(3):749–755, 2012.

Casey Kelleher, Daniel Miller, Trenton Osborn, and Anthony Weston. Polygonal equalities and virtual degeneracy in L_p-spaces. *J. Math. Anal. Appl.*, 415(1):247–268, 2014.

Experience

Teaching Assistant   *Ithaca, NY*
CORNELL UNIVERSITY   *August 2012–PRESENT*
- Czar's Assistant for Calculus I and II.
- Teaching assistant for Honors Calculus II and Multivariable Calculus.
- Grader for Graduate Algebra I and II.

Resident Advisor   *Ithaca, NY*
CHESTERTON HOUSE   *August 2013–May 2014*
- Coordinated living responsibilities and events for a household of 15 men.

Tutor at the Math–Science Learning Center   *Omaha, NE*
UNIVERSITY OF NEBRASKA OMAHA   *January 2012–May 2012*
- Tutored undergraduate students in calculus, discrete math, and differential equations.

Coursework and skills

Coursework: Algebraic topology — Cloud computing — Database management systems — Data structures — Functional programming — Linear algebraic groups — Object-oriented programming — Operating systems — Probability theory — Real analysis — Smooth manifolds

Programming: C — C# — Java — T$_{\!E}$X— Python