

Mitchel T. Keller

Education

- May 2010 **Ph.D. in Mathematics**, *Georgia Institute of Technology*, Atlanta, Georgia.
Minor in Algorithms. Dissertation: *Some Results on Linear Discrepancy for Partially Ordered Sets*.
Advisor: William T. Trotter.
- May 2004 **B.S. in Mathematics**, *North Dakota State University*, Fargo, North Dakota, *With Honor*.
Minor in Computer Science. Completed University Honors Program. Honors Thesis: *Knot Theory: History and Applications with a Connection to Graph Theory*

Academic and Research Positions

- 2010–2012 **Visiting Fellow**, *Department of Mathematics, London School of Economics and Political Science*, London, United Kingdom.
Supported by Marshall Sherfield Fellowship.
- 2004–2010 **VIGRE Graduate Teaching and Research Assistant**, *School of Mathematics, Georgia Institute of Technology*, Atlanta, Georgia.
- Applied Combinatorics Lead Instructor. Full responsibility for courses with 65 (Spring 2010) and 34 (Fall 2008) students. Taught from in-development text being co-authored with William T. Trotter. Used TurningPoint response system.
 - Precalculus Lead Instructor. Full responsibility (including text selection) for courses with 45 (Fall 2009) and 36 (Spring 2007) students. Supervised undergraduate teaching assistants. Used Interwrite PRS response system and WileyPLUS.
 - Calculus I Lead Instructor, Fall 2006. Full responsibility for course with 126 students. Supervised undergraduate teaching assistants.
 - Applied Combinatorics Teaching Assistant, Spring 2006. Co-authored lecture notes, held office hours, graded, and gave substitute lectures.
 - Calculus I and II Teaching Assistant, Fall 2005 and Spring 2008. Led recitation, held office hours, and graded.
- Summer 2004 **Research Intern II**, *Institute for Defense Analyses-Center for Computing Sciences*, Bowie, Maryland.
Developed and tested algorithms for data mining of large graphs using Perl, C, and Hancock (a C-based, domain-specific language for analyzing data streams). Top Secret Security Clearance, Department of Defense.
- Summer 2003 **Director's Summer Program**, *National Security Agency*, Ft. George G. Meade, Maryland.
Worked in a team environment to develop and test mathematical algorithms for data mining. Trained and tested neural networks using LNKnet. Implemented and tested algorithms using C and Perl. Top Secret Security Clearance, Department of Defense.

- Summer 2002 **Mathematics Research Experience for Undergraduates Program**, *Louisiana State University*, Baton Rouge, Louisiana.
Conducted research connecting graph theory and knot theory with N.W. Stoltzfus.
- 2001–2004 **Undergraduate Teaching Assistant, Paper Grader, and Computer Systems Administrator**, *Department of Mathematics, North Dakota State University*, Fargo, North Dakota.

Publications

- [1] Asymptotic enumeration of labelled interval orders. Submitted, November 2011 (with G. Brightwell).
- [2] [The reversal ratio of a poset](#). Submitted, July 2011 (with G. Brightwell).
- [3] [On the Stanley depth of squarefree Veronese ideals](#). *J. Alg. Combin.*, 33(2):313–324, 2011 (with Y.-H. Shen, N. Streib, and S. J. Young).
- [4] [Interval partitions and Stanley depth](#). *J. Combin. Theory Ser. A.*, 117(4):475–482, May 2010 (with Cs. Biró, D. M. Howard, W. T. Trotter, and S. J. Young).
- [5] [Online linear discrepancy of partially ordered sets](#). In Imre Bárány and Jozsef Solymosi, editors, *An Irregular Mind, Szemerédi is 70*, volume 21 of *Bolyai Soc. Math. Stud.*, 343–357. Springer, 2010 (with N. Streib and W. T. Trotter).
- [6] [Degree bounds for linear discrepancy of interval orders and disconnected posets](#). *Discrete Math.*, 310(15–16):2198–2203, 2010 (with S. J. Young).
- [7] [Stanley depth of squarefree monomial ideals](#). *J. Algebra*, 322(10):3789–3792, 2009 (with S. J. Young).
- [8] [A characterization of partially ordered sets with linear discrepancy equal to 2](#). *Order*, 24(3):139–153, 2007 (with D. M. Howard and S. J. Young).

Honors and Awards

- 2010 [Marshall Sherfield Fellow](#)
- 2010 Mitch Keller Lifetime Achievement Award, Graduate Student Government Association, Georgia Institute of Technology (Inaugural recipient and award namesake)
- 2009 Robert Price Research Award, School of Mathematics, Georgia Institute of Technology
- 2009 [K. Patricia Cross Future Leaders Award](#), Association of American Colleges and Universities
- 2008 Outstanding Teaching Assistant Award, Georgia Institute of Technology
- 2008 Best Oral Presentation for the College of Sciences, Georgia Tech Graduate Student Symposium
- 2008 [Love of Learning Grant](#), The Honor Society of $\Phi\Kappa\Phi$
- 2006 Helen E. Grenga Friend of the Graduate Student Award, Graduate Student Government Association, Georgia Institute of Technology
- 2006 John R. Festa Fellowship for strong academic and leadership skills, School of Mathematics, Georgia Institute of Technology
- 2006 IMPACT Scholarship for strong leadership skills, Auxiliary Services, Georgia Institute of Technology

- 2002 Inducted into The Honor Society of $\Phi\Kappa\Phi$
- 2000 National Merit Scholar
- 2000 North Dakota delegate to the United States Senate Youth Program

Mathematics Presentations

Conferences

- July 2011 Reversal ratio and linear extension diameter. 23rd British Combinatorial Conference, Exeter, United Kingdom.
- June 2011 Reversal ratio and linear extension diameter. 2011 Canadian Conference on Discrete and Algorithmic Mathematics (CanaDAM), Victoria, British Columbia.
- June 2010 Online linear discrepancy. SIAM Conference on Discrete Mathematics, Austin, Texas.
- May 2008 A characterization of partially ordered sets with linear discrepancy equal to 2. (Poster presentation.) New Directions in Algorithms, Combinatorics, and Optimization, Atlanta, Georgia.
- March 2008 A characterization of partially ordered sets with linear discrepancy equal to 2. 2008 Georgia Tech Graduate Student Symposium.
- April 2005 Six degrees of separation, Or, why Bacon is a good, but not the best, choice. North Dakota State University Mathematics Consortium.
- January 2003 Signed graph Laplacians. AMS-MAA-SIAM Special Session on Research in Mathematics by Undergraduates, Joint AMS/MAA Meeting, Baltimore, Maryland.

Others

- May 2011 Online linear discrepancy, Technion Combinatorics Seminar.
- February 2011 Online linear discrepancy, London School of Economics Discrete Mathematics Lunchtime Seminar.
- October 2010 Interval partitions and Stanley depth, London School of Economics Discrete Mathematics and Game Theory Seminar.
- December 2009 Interval partitions and Stanley depth, University of Louisville Mathematics Colloquium.
- November 2009 Online algorithms for graphs and partially ordered sets, Georgia Tech SIAM Student Seminar.
- December 2008 The Probabilistic Method, Or, Using Probability to Show that Something Definitely Exists, North Dakota State University Mathematics Club.
- July 2007 Linear discrepancy in partially ordered sets. North Dakota State University Mathematics Colloquium.
- May 2004 Six degrees of separation, Or, why Kevin Bacon is a good, but not the best, choice. North Dakota State University Mathematics Club.
- April 2004 Some combinatorial proofs of some noncombinatorial results. North Dakota State University Mathematics Colloquium.

- September 2003 One, two, skip a few, ninety-nine, one hundred, Or, How I learned there are smarter ways to count. North Dakota State University Mathematics Club.
- September 2002 Algebra and graphs and knots—oh my! North Dakota State University Mathematics Club.

Teaching, Learning, and Academic Integrity Presentations

Invited Faculty Development Workshops

- May 2011 Workshops on effective teaching, assessment of learning objectives, helping students think critically, and effective classroom management/dealing with disruptive students. Deanship of Skills Development, King Saud University, Riyadh, Kingdom of Saudi Arabia.
- August 2010 Problem Solving in the Classroom (with D.C. Llewellyn, Georgia Tech). Georgia Tech Center for the Enhancement of Teaching and Learning Fall Kickoff Workshop.
- July 2010 Workshops on active learning and rubrics for faculty from King Saud University. Organized by the Georgia Tech Center for the Enhancement of Teaching and Learning.
- January 2010 Getting your students to read the text (before class). Georgia Tech Retreat Exploring Effective Teaching.

Conferences

- February 2010 Integrated Course Design: Extending Lessons from an Introductory Mathematics Course (with L. Soleil, Georgia Tech). Lilly Conference on College and University Teaching, Greensboro, North Carolina.
- October 2005 Proactive Academic Integrity Measures—The Second Generation (with K.D. Boyd, University of Georgia, and E.S. McGarity, Georgia Tech). The 2005 Center for Academic Integrity International Conference, Blacksburg, Virginia.
- October 2005 Academic Integrity and Cultural Differences (with M. Barry, Rochester Institute of Technology, and L. Pendleton, Virginia Tech). The 2005 Center for Academic Integrity International Conference, Blacksburg, Virginia.

Service Activities

Mathematics

- February 2010–
2011– Managing Director, [Mathematics Genealogy Project](#)
Reviewer for *Mathematical Reviews*
- 2005– Referee for *Central European J. of Math. Sci., Comm. Algebra, Discrete Appl. Math., Disc. Math., J. Commut. Algebra, J. Graph Theory*, and *Order*
- October 2008–
February 2010 Interim co-Managing Director, Mathematics Genealogy Project
- 2003–2010 Assistant Director, Mathematics Genealogy Project

- 2005–2007, 2010 Volunteer, Georgia Tech High School Mathematics Competition
- 2007–2010 Judge, Undergraduate Research Spring Symposium, Georgia Tech
- 2007–2009 Co-chair, Organizing Team, Georgia Tech High School Mathematics Competition
- 2002–2003 Technical Director, Mathematics Genealogy Project

Campus Governance

- 2007–2010 School of Mathematics Senator, Graduate Student Government Association (SGA), Georgia Tech
- 2007–2009 Health Services Committee Chair, Graduate SGA, Georgia Tech
- 2006–2007 Graduate Student Body President, Graduate SGA, Georgia Tech (Includes service as a non-voting member of the Institute Executive Board, Academic Senate, and General Faculty Assembly.)
- 2005–2006 Executive Vice President, Graduate SGA, Georgia Tech
- 2004–2005 School of Mathematics Senator and Secretary of the Senate, Graduate SGA, Georgia Tech
- 2003–2004 Senator, University Senate, North Dakota State University
- 2002–2004 Parliamentarian, Student Senate, North Dakota State University
- 2002–2003 Associate Justice, Student Court of Justice, North Dakota State University
- 2001–2002 Senator, University Senate, North Dakota State University
- 2000–2002 Chief Justice, Student Court of Justice, North Dakota State University

Boards and Committees

- 2006–2010 Student Regulations Committee, Georgia Tech
- 2004–2010 Honor Advisory Council, Georgia Tech (Vice Chair, Fall 2005)
- 2008–2010 Course/Instructor Opinion Survey Revision Task Force, Georgia Tech
- 2008–2010 New Teaching Assistant Orientation Planning Committee, Georgia Tech
- 2009 Assistant Director of Student Integrity Search Committee, Georgia Tech
- 2007–2009 Student Grievance and Appeal Committee, Georgia Tech
- 2008 Dean and Director of Libraries Search Committee, Georgia Tech
- 2007–2008 Student Health Insurance Program Steering Committee, University System of Georgia
- 2007–2008 Student Advisory Board to the Senior Vice Provost for Academic Affairs, Georgia Tech
- 2005–2008 Mandatory Student Fee Advisory Committee, Georgia Tech
- 2007 Vice Provost for International Initiatives Search Committee, Georgia Tech
- 2006–2007 Dean of Sciences Search Committee, Georgia Tech
- 2006–2007 Board of Trustees, Georgia Tech Athletic Association (Member of Committee on Academics)
- 2006–2007 Registrar's Advisory Board, Georgia Tech
- 2006–2007 Radio Communications Board, Georgia Tech

- 2006–2007 Sexual Violence Task Force, Georgia Tech
2006 Dean of Students Search Committee, Georgia Tech
2006 Provost and Vice President for Academic Affairs Search Committee, Georgia Tech
2006 Chair, Committee to rewrite SGA funding policies, Georgia Tech
2005–2006 Student Health Insurance Task Force, University System of Georgia. Represented over 250,000 students from 35 campuses in selecting a hard-waiver insurance plan.
2005–2006 Academic Integrity Committee of the Academic Senate, Georgia Tech
2005 Assistant Dean of Students/Director of Student Integrity Search Committee, Georgia Tech
2001–2004 Grade Appeals Board, North Dakota State University (Acting Chair, Spring 2004)
2001–2004 Student Co-Coordinator, University Honors Program, North Dakota State University. Organized 2004 Conference of the Upper Midwest Honors Council, which was attended by 141 individuals from 21 institutions in 8 states.
2001–2004 North Dakota Student Representative, Upper Midwest Honors Council Governing Board
2000–2004 Code of Student Behavior Complaint Resolution Board, North Dakota State University

Memberships

- American Mathematical Society
- The Honor Society of $\Phi\Kappa\Phi$
- London Mathematical Society
- Mathematical Association of America
- Pi Mu Epsilon National Honorary Mathematics Society
- Society for Industrial and Applied Mathematics