

## 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

- 2013– **Assistant Professor**, *Department of Mathematics, Washington and Lee University*, Lexington, Virginia.
- 2012–2013 **Research Assistant Professor**, *Department of Mathematics, University of Nebraska-Lincoln*, Lincoln, Nebraska.
- 2010–2012 **Visiting Fellow**, *Department of Mathematics, London School of Economics and Political Science*, London, United Kingdom.  
Supported by Marshall Sherfield Fellowship.
- 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.

## Publications

- Hereditary semiorders and enumeration of semiorders by dimension. Submitted, 2017 (with S. J. Young).
- Combinatorial reductions for the Stanley depth of  $I$  and  $S/I$ . *Electron. J. Combin.*, 24(3):Paper 48, 19 pages, 2017 (with S. J. Young).
- Posets with cover graph of pathwidth two have bounded dimension. *Order*, 33(2):195–212, 2016 (with Cs. Biró and S. J. Young).
- The reversal ratio of a poset. *Order*, 32(1):43–52, January 2015 (with G. Brightwell).
- On the Stanley depth of squarefree Veronese ideals. *J Alg Comb.*, 33(2):313–324, 2011 (with Y.-H. Shen, N. Streib, and S. J. Young).

Interval partitions and Stanley depth. *J Comb. Theory Ser A*, 117(4):475–482, May 2010 (with Cs. Biró, D. M. Howard, W. T. Trotter, and S. J. Young).

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).

Degree bounds for linear discrepancy of interval orders and disconnected posets. *Discrete Math*, 310(15–16):2198–2203, 2010 (with S. J. Young).

Stanley depth of squarefree monomial ideals. *J Algebra*, 322(10):3789–3792, 2009 (with S. J. Young).

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).

## Book

*Applied Combinatorics* with W.T. Trotter. Published through Amazon CreateSpace in August 2016 and available online for free under a Creative Commons license at <http://rellek.net/appcomb/>. Endorsed by the American Institute of Mathematics Open Textbooks Initiative.

## Teaching Experience

### Washington and Lee University

- Calculus I, Calculus II, Multivariable Calculus
- Discrete Mathematics I
- Fundamental Concepts of Mathematics, Graph Theory, Combinatorics, Number Theory
- Mathematics GRE subject test seminar
- Directed independent study (Combinatorics of partially ordered sets)

### University of Nebraska-Lincoln

- Multivariable calculus and introduction to modern algebra (a transition to proof and elementary ring theory course)

### Georgia Institute of Technology

- Instructor of record for precalculus, Calculus I, and applied combinatorics

## Undergraduate Research Supervision

2015–2016 Matthew R. Kiser '16. Washington & Lee University Honors Thesis: *Up-growing On-line Linear Discrepancy of Triple-Optimal Partially Ordered Sets*

Summer 2015 Aswasan (AJ) Joshi '17. Washington & Lee University Summer Research Scholar project: *Stanley Depth of Monomial Ideals: A Computational Investigation*

## Honors and Awards

- 2013–2014 Project NExT (New EXperiences in Teaching) Fellow, Mathematical Association of America (brown13 dot, fellowship sponsored by American Mathematical Society).
- 2013 Certificate of Recognition for Contributions to Students, University of Nebraska-Lincoln Parents Association and Teaching Council
- 2010 [Marshall Sherfield Fellow](#) (Completed at London School of Economics)
- 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
- 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

- June 2016 Combinatorial approaches to Stanley depth: Where do we stand?. SIAM Conference on Discrete Mathematics, Atlanta, Georgia.
- August 2014 Posets with cover graph of pathwidth two have bounded dimension. 2014 International Congress of Mathematicians, Seoul, Republic of Korea.
- October 2013 Posets with cover graph of pathwidth two have bounded dimension. (Invited talk in special session on partially ordered sets.) Fall Southeastern Sectional Meeting of the AMS, Louisville, Kentucky.
- May 2013 Reversal Ratio and Linear Extension Diameter. Invited talk at Shrevefest in Fargo, North Dakota.
- April 2013 Reversal Ratio and Linear Extension Diameter. (Invited talk in special session on extremal combinatorics.) Spring Central Sectional Meeting of the AMS, Ames, Iowa.
- September 2012 Reversal ratio and linear extension diameter. 53<sup>rd</sup> Midwestern Graph Theory Conference (MIGHTY LIII), Ames, Iowa.
- June 2012 Reversal ratio and linear extension diameter. (Invited talk in posets minisymposium.) SIAM Conference on Discrete Mathematics, Halifax, Nova Scotia.
- December 2011 Reversal ratio and linear extension diameter. 35th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, Melbourne, Australia.

- 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. (Invited talk in posets minisymposium.) SIAM Conference on Discrete Mathematics, Austin, Texas.
- January 2003 Signed graph Laplacians. AMS-MAA-SIAM Special Session on Research in Mathematics by Undergraduates, Joint AMS/MAA Meeting, Baltimore, Maryland.

### Others

- October 2017 Online Algorithms: Dealing with an Evolving Situation. Wellesley College mathematics colloquium.
- October 2017 Interval orders, semiorders, and ascent sequences. Pacific Northwest National Laboratory Mathematics Seminar.
- August 2017 Stanley depth and interval partitions. Pacific Northwest National Laboratory Mathematics Seminar.
- July 2017 How fair is that ranking?: Linear discrepancy of partially ordered sets. Talk to summer research students at the Wake Forest-Davidson REU.
- February 2017 How fair is that ranking?: A mathematician looks at the AP college basketball poll. James Madison University Mathematics Colloquium.
- October 2016 Open access discussion panel (with K. Friend, C. Galaver, and T. Lubin). Washington & Lee University Library.
- October 2016 How fair is that ranking?: A mathematician looks at the AP college football poll. Hampden-Sydney College Mathematics and Computer Science Colloquium.
- October 2016 Counting in fancy ways. Lenfest Colloquium, Washington & Lee University.
- July 2016 Online algorithms: When you don't know everything at the start. Pacific Northwest National Laboratory Mathematics Seminar.
- March 2016 Monochromatic solutions of linear equations. Pi Mu Epsilon initiation, Washington & Lee University.
- September 2014 Herzog's partition problem, Virginia Commonwealth University Discrete Mathematics Seminar.
- March 2013 Online linear discrepancy, University of Louisville Combinatorics Seminar.
- January 2013 Interval partitions and Stanley depth, North Dakota State University Department of Mathematics Colloquium
- September 2012 Online linear discrepancy, University of Nebraska-Lincoln Discrete Mathematics Seminar.
- May 2012 Asymptotic Enumeration of Labelled Interval Orders, University of California, San Diego Combinatorics Seminar
- February 2012 Interval partitions and Stanley depth, Mississippi State University Mathematics Colloquium
- 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.

## Teaching, Learning, and Academic Integrity Presentations

### Invited Faculty Development Workshops

- January 2018 Authoring Integrated Online Textbooks with MathBook XML (with K.-D. Crisman, Gordon College). MAA Minicourse, Joint Mathematics Meetings, San Diego, California.
- April 2017 How to use as much inquiry as you're comfortable with in your calculus class (with A. Ksir, US Naval Academy, and C. Williams, James Madison University). Spring meeting of the Maryland-DC-Virginia Section of the Mathematical Association of America. Frostburg State University, Frostburg, Maryland.
- August 2015 Box at WLU panelist for Fall Academy 2015. Washington & Lee University.
- December 2014 Active Learning in a Clunky Classroom panelist for Winter Academy 2014. Washington & Lee University.
- August 2014 Teaching in the Versatile Learning Classroom panelist for Fall Academy 2014. Washington & Lee University.
- 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

- January 2018 Open educational resources and inquiry-based learning: Bogart's *Combinatorics through Guided Discovery* gets new life. MAA Session on Inquiry-Based Teaching and Learning, Joint Mathematics Meetings, San Diego, California.
- January 2017 The Journey of one Open Source Applied Combinatorics Text. MAA Session on the Advancement of Open Educational Resources, Joint Mathematics Meetings, Atlanta, Georgia.
- November 2016 My IBL Approach to Theoretical Ideas in First-Semester Calculus. Special session on inquiry-based learning. Fall meeting of the Maryland-DC-Virginia Section of the Mathematical Association of America, Johns Hopkins University, Baltimore, Maryland.
- April 2016 Inquiry-Based Learning in the Maryland-DC-Virginia Section panel (with A. Ksir, P. McLoughlin, and C. Williams). Spring meeting of the Maryland-DC-Virginia Section of the Mathematical Association of America, Montgomery College, Germantown, Maryland.
- January 2016 Perspectives on IBL [Inquiry-Based Learning] Teaching: Novice, Experienced, and Master panel (with C. Schumacher and A. Hodge) at Joint Mathematics Meetings, Seattle, Washington.

- November 2015 IBL Intro to Proof in Four Weeks: A Survivor's Tale. Fall Meeting of the Maryland-DC-Virginia Section of the Mathematical Association of America, St. Mary's College of Maryland.
- January 2014 Project NExT panel on Assessment in Nontraditional Classroom (moderator and organizer, with M. Lindsey, Y. Ma, and K. McCullough) at Joint Mathematics Meetings, Baltimore, Maryland.
- 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.

### Workshops Attended

- 2017 The Integration of Online Materials and Online Textbooks University of Puget Sound, Tacoma (Workshop organized by American Institute of Mathematics through their NSF-funded UT-MOST: Undergraduate Teaching in Mathematics with Open Software and Textbooks program)
- 2016 American Institute of Mathematics workshop on Open Source Textbooks in MathBook XML
- 2014 Inquiry-Based Learning Workshop, Kenyon College
- 2014 Associated Colleges of the South Teaching Workshop, Trinity University

### Funding

- 2017–2018 Active Learning in STEM Cohort (with N. Toporikova). Funding of \$2,000 from the Office of the Dean of the College. Funds biweekly faculty discussion group related to active learning in STEM disciplines.
- 2017 Lenfest Summer Fellowship Award, Washington & Lee University. (Awarded \$4,500 stipend and \$2,000 expenses).
- 2016–2017 Active Learning in STEM Cohort (with N. Toporikova). Funding of \$4,000 from the Office of the Dean of the College and \$1,000 from Information Technology Services. Funds biweekly faculty discussion group related to active learning in STEM disciplines as well as a workshop on flipped learning in higher education facilitated by Robert Talbert for Fall Academy 2016.
- 2016 Lenfest Summer Fellowship Award, Washington & Lee University. (Awarded \$4,500 stipend and \$2,000 expenses).
- 2015 Summer Research Scholar Faculty Mentor (Aswasan (AJ) Joshi '17), Washington & Lee University. (Awarded \$3,150 for student stipend.)
- 2015 Lenfest Summer Fellowship Award, Washington & Lee University. (Awarded \$4,500 stipend and \$2,000 expenses).
- 2014 Lenfest Summer Fellowship Award, Washington & Lee University. (Awarded \$4,500 stipend and \$2,000 expenses).
- 2014 Applied unsuccessfully for AMS-Simons Travel Grant (\$2,000 per year for two years).

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## Service Activities

### Mathematics

- 2010– Managing Director, [Mathematics Genealogy Project](#). (Previously served as Technical Director (2002–2003), Assistant Director (2003–2010), and Interim co-Managing Director (2008–2010).)
- 2017– Treasurer, Maryland-DC-Virginia Section of the Mathematical Association of America
- 2011– Reviewer for *Mathematical Reviews*
- 2009– Judge, Mathematical Association of America Undergraduate Poster Session at Joint Mathematics Meetings
- 2005– Referee for *Central European J. of Math. Sci.*, *Comm. Algebra*, *Discrete Appl. Math.*, *Disc. Math.*, *J. Commut. Algebra*, *J. Graph Theory*, *Open J. Disc. Math.*, *Order*, *Bull. Korean Math. Soc.*
- 2014– Judge, Virginia State Science and Engineering Fair, Virginia Military Institute
- 2014 Judge, Mathematical Association of America undergraduate talks at 2014 MathFest in Portland, Oregon.
- 2012–2013 Putnam Seminar Committee, University of Nebraska-Lincoln
- 2007–2009 Co-chair, Organizing Team, Georgia Tech High School Mathematics Competition

### Departmental Service

- 2015– Organize students to attend the spring sectional meeting of the Maryland-DC-Virginia section of the Mathematical Association of America
- 2015–2017 Responsible for Department of Mathematics assessment report on courses satisfying the Foundations in Mathematics and Computer Science requirement
- 2015–16 Faculty Maintainer for Department of Mathematics Website
- 2014 Search committee to hire two one-year visitors

### 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
- 2002–2003 Associate Justice, Student Court of Justice, North Dakota State University
- 2000–2002 Chief Justice, Student Court of Justice, North Dakota State University

### Boards and Committees

- 2016–2017 Graduate Fellowships Committee, Washington & Lee University
- 2015–2016 Futures of STEM Pedagogy Working Group, Washington & Lee University
- 2012 Outstanding Graduate Research Assistant Award Selection Committee, University of Nebraska-Lincoln

- 2004–2010 Honor Advisory Council, Georgia Tech (Vice Chair, Fall 2005)
- 2008–2010 New Teaching Assistant Orientation Planning Committee, Georgia Tech
- 2007–2008 Student Health Insurance Program Steering Committee, University System of Georgia
- 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.
- 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.

### Other

- 2015– Faculty athletics mentor for the baseball team. Washington & Lee University.
- 2015– Out faculty and staff group. LGBTQ Resource Center. Washington & Lee University.
- 2015– Faculty advisor to Alpha Phi Omega service fraternity. Washington & Lee University.
- 2015–2017 Faculty interviewer for Johnson Scholarship finalists. Washington & Lee University.
- 2015 Moderator for Poster Session 1B at the Washington & Lee University Science, Society, and the Arts Conference (SSA6).

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### 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