

Saúl A. Blanco

Curriculum Vitae

700 Jordan Ave.
Bloomington, IN 47408

sblancor@indiana.edu
<http://homes.sice.indiana.edu/sblancor/>

EDUCATION

- Ph.D. Department of Mathematics, Cornell University, 2012
- M.A. Department of Mathematics, Cornell University, 2008
- B.A. Department of Mathematics, Cornell University, 2005

PROFESSIONAL EXPERIENCE

- 2017-present Visiting Assistant Professor, School of Informatics, Computing and Engineering, Indiana University, Bloomington
- 2013-2017 Lecturer, School of Informatics and Computing, Indiana University, Bloomington
- 2011-2013 Visiting Assistant Professor, Department of Mathematical Sciences, DePaul University

PUBLICATIONS

Peer Reviewed Journal Articles

- 2019 **S. A. Blanco**, C. Buehrle, Some relations on prefix reversal generators of the symmetric and hyperoctahedral group, *The Australasian Journal of Combinatorics*, to appear
- S. A. Blanco**, C. Buehrle, and A. Patidar, Cycles in the burnt pancake graph, *Discrete Applied Mathematics*, to appear.
- S. A. Blanco**, C. Buehrle, and A. Patidar, On the number of pancake stacks requiring four flips to be sorted, *Discrete Mathematics and Theoretical Computer Science*, **21**(2)
- S. A. Blanco**, Weak Z-property of the absolute order on groups generated by sets closed under taking inverses, *Order*, **36**(2), 391-397
- 2018 **S. A. Blanco**, Flip poset of Bruhat intervals, *Electronic Journal of Combinatorics*, **25**(4), #P4.16
- 2014 **S. A. Blanco** and T. K. Petersen, Counting Dyck paths by area and rank, *Annals of Combinatorics*, **18**(2), 171-197

- 2013 **S. A. Blanco**, Shortest path poset of Bruhat intervals, *Journal of Algebraic Combinatorics*, **38**(3), 585-596
- 2013 L. J. Billera and **S. A. Blanco**, Bandwidth of the product of paths of the same length, *Discrete and Applied Mathematics*, **161**(18), 3080-3086
- 2011 **S. A. Blanco**, The **cd**-index of dihedral and universal Coxeter groups, *Electronic Journal of Combinatorics*, **18**(1), #P174
- 2011 **S. A. Blanco** and A. S. Fraenkel, Tromping games: Tiling with Trominoes, *INTEGERS, Electronic Journal of Combinatorial Number Theory*, **11**(A), #6

Conference Proceedings

- 2020 C. Kisby, S. A. Blanco, A. Kruckman, and L. Moss, **Logics for Sizes with Union or Intersection**, to appear in the **Proceedings of AAAI'20**.
- 2019 C. Tao, **S. A. Blanco**, J. Peng, and Y. Zhou, Thresholding Bandit with Optimal Aggregate Regret, to appear in the **Proceedings of NeuroIPS'19**.
- 2018 C. Tao, **S. A. Blanco**, and Y. Zhou, Best Arm Identification in Linear Bandits with Linear Dimension Dependency in **Proceedings of the ICML'18: 35 International Conference on Machine Learning**.
Active Learning in a Discrete Mathematics Class, to appear in **Proceedings of SIGCSE'18: 49th ACM technical symposium on Computer science education**
- 2016 J. Wang, M. Korayem, **S. Blanco**, David J. Crandall, Tracking Natural Events through Social Media and Computer Vision. **Proceedings of the 2016 ACM Multimedia Conference**, Amsterdam The Netherlands, October, 1097-1101
- 2014 N. S. Onesti, **S. A. Blanco**, J. Duncan, M. Hmeljak and D. Richert, CAT's: Not just a furry friend: using active learning in your classrooms. **Proceedings of SIGCSE'14: 45th ACM technical symposium on Computer science education**, Atlanta GA, April, page 731
- 2011 **S. A. Blanco**, Shortest path poset of Bruhat intervals, **Proceedings of FPSAC 2011 (23rd Conference on Formal Power Series and Algebraic Combinatorics)**, Reykjavik Iceland, June, *Discrete Mathematics and Theoretical Computer Science proc. AO*, 191-198
- 2009 **S. A. Blanco**, Shortest path poset of finite Coxeter groups, **Proceedings of FPSAC 2009 (21st Conference on Formal Power Series and Algebraic Combinatorics)**, Hagenberg Austria, July, *Discrete Mathematics and Theoretical Computer Science proc. AK*, 189-200

Technical Reports

- 2005 A. Acosta, E. Bar-zohar, **S. A. Blanco**, D. Luli, and Linda Q. Gao, An epidemic model for HSV-1 with vaccination. MTBI-02-04M, Mathematical and Theoretical Biology Institute
- 2004 **S. A. Blanco** and A. S. Franekel, Triomineering, Tridomineering and L-Tridomineering. MCS04-10, Department of Computer Science and Applied Mathematics, The Weizmann Institute of Science

FELLOWSHIPS & AWARDS

- 2018 FACET/Mack Center SoTL Travel Grant
- 2016-2017 Improving Teaching and Learning through Ongoing Feedback, Center for Innovative Teaching and Learning, Indiana University
- 2015 Collaborative Learning Faculty Learning Community, Center for Innovative Teaching and Learning, Indiana University
- 2013 Transforming STEM Education Faculty Learning Community, Center for Innovative Teaching and Learning, Indiana University
- 2011 Olivetti Egg, best talk at Olivetti Club, Department of Mathematics, Cornell University, spring
- 2008 Hutchinson Fellowship, Department of Mathematics, Cornell University
- 2005 Outstanding Poster, Los Alamos National Labs student symposium
- 2002-2005 Señor Presidente Scholarship, Mathematical Talent, Government of El Salvador

CONFERENCE ACTIVITY

Invited Talks

- 2018 Combinatorial problems in AI, Research Horizons, School of Informatics and Computing, Indiana University, April 12-13
- 2016 Misère play: When running out of moves is a good thing, Research Horizons, School of Informatics and Computing, Indiana University, September 8-9
- 2012 Counting Dyck paths by area and rank, Special Session: Graphs, Polytopes and Algebraic Combinatorics, Central Fall Sectional Meeting of the AMS, University of Akron, Akron OH, October 20-21
- 2011 Flip algorithm: separating Bruhat paths into nice pieces, Special Session: Combinatorial Representation Theory, Spring Eastern Sectional Meeting of the AMS, College of the Holy Cross, Worcester, MA., April 9-10

- 2010 The shortest-path poset of Bruhat intervals, Special Session: Algebraic and Topological Combinatorics. Fall Eastern Section Meeting of the AMS, University of Notre Dame, November 5 - 7
- 2010 The shortest-path poset of Bruhat intervals, Special Session: Algebraic and Topological Combinatorics. Workshop on Quasisymmetric Functions, BIRS Nov. 14 -19
- 2010 Descent distribution of labelings on Bruhat paths, Special Session: Advances in Algebraic and Geometric Combinatorics, Spring Southeastern Section Meeting of the AMS, University of Kentucky, Lexington KY, March 27-28
- 2009 The shortest path poset of a finite Coxeter group, Special Session: Algebraic Combinatorics, Fall Eastern Section Meeting of the AMS, Pennsylvania State University, State College PA October 24-25
- 2006 Un modelo epidemiológico del HSV-1 (An epidemic model for HSV-1), Pan-American Advanced Studies Institute, Mathematical Models in Population Dynamics, University of El Salvador, San Salvador, July 17-28
- 2005 Algunas variaciones del juego de Domineering (Some variations of the game of Domineering), First Central American Course in Mathematical Modeling, San Salvador, January

Contributed Talks

- 2018 Pancake Stacks Requiring 4 Flips to be Sorted, INTEGERS Conference, Augusta GA
Active Learning in a Discrete Mathematics Class, SIGCSE 2018, Baltimore, MD,
- 2017 Transforming Teaching & Learning through Feedback, FACET Retreat, Nashville, IN
- 2016 A Games and Puzzles Class with Programming, MathFest 2016, Columbus OH, August 3-6
- 2014 CAT's: not just a furry friend, using active learning techniques in your classroom (with N. Onesti, J. Duncan, M. Hmeljak, and D. Richert) Birds of a Feather session, SIGCSE 2014, Atlanta GA, March 5-8
- 2010 Descent distribution of labelings on Bruhat paths, Graduate Student Combinatorics Conference, Auburn University, Auburn AL, April 3-4
- 2009 The complete cd-index of dihedral intervals and finite Coxeter groups, Graduate Student Combinatorics Conference, University of Kentucky, March 27-29
- 2008 The complete cd-index of Bruhat intervals, Graduate Student Conference in Algebra and Topology, Binghamton University, Binghamton NY, November 8
- 2005 An epidemic model for HSV-1 with vaccination, MathFest, Albuquerque NM, August 4-6

Posters

- 2011 The shortest path poset of Bruhat intervals. 23rd International Conference in Algebraic Combinatorics and Formal Power Series, Reykjavik, Iceland, June 13-17
- 2009 The shortest path poset of a finite Coxeter group, 21st International Conference in Algebraic Combinatorics and Formal Power Series, Hagenberg, Austria, July 20-24
- 2005 An epidemic model for HSV-1 with vaccination, Society for the Advancement of Chicanos and Native Americans National Conference, Denver, September 29-October 1. This poster was also presented in the LANL Student Symposium 2005, where it won a “best poster award”

CAMPUS TALKS

Colloquium Talks

- 2019 Flipping pancakes is hard, CS Department Colloquim, Purdue Fort Wayne
- 2018 Los gráficos de pancakes y de pancakes quemados, School of Mathematics, University of El Salvador, San Salvador, El Salvador
- 2017 Combinatorial Games: Normal and Misère, Department of Mathematics, University of Mary Washington
 - 2017** School of Mathematical and Natural Sciences, Arizona State University
 - 2017** Department of Mathematics, Rose-Hulman Institute of Technology
- 2017 Shortest path poset of Bruhat intervals, Department of Mathematics, Virginia Tech.
 - 2017** George Washington University

Seminar Talks

- 2018 Cycles in the pancake and burnt pancake graph, NCSU Algebra and Combinatorics Seminar, North Carolina State University, Raleigh, NC
 - Best Arm Identification in Linear Bandits with Linear Dimension Dependency, CAML (Center for Algorithms and Machine Learning) Seminar, School of Informatics, Computing, and Engineering, Bloomington, IN
- 2017 Shortest path poset of Bruhat intervals, Combinatorics Seminar, Tulane University
- 2016 Symmetric Boolean decompositions for non-crossing partitions of A and B, Combinatorics Seminar, Indiana University
 - 2012** Discrete Math Seminar, Arizona State University
 - 2012** Combinatorics Seminar, University of Illinois at Chicago

- 2011 The poset of shortest paths in an interval of the Bruhat order, Algebra and Combinatorics Seminar, DePaul University
- 2011 Shortest path poset of Bruhat intervals, Discrete Geometry and Combinatorics Seminar, Cornell University
 - 2011** Combinatorics Seminar, Binghamton University
- 2010 Complete cd-index of Bruhat intervals, Lie Theory Seminar, Notre Dame University
- 2009 Some computational and combinatorial aspects of Coxeter groups, Penn Grad Student Combinatorics Seminar, University of Pennsylvania
- 2009 Combinatorial descriptions of Coxeter Groups and the Shortest path poset, Capital Region Algebra/Number Theory Seminar, University at Albany
- 2009 Combinatorial descriptions of Coxeter groups of type A, B and D, Discrete Geometry and Combinatorics Seminar and Lie Group Seminar, Cornell University
- 2008 Chains in the Bruhat graph, Discrete Geometry and Combinatorics Seminar, Cornell University

Expository Talks

- 2019 Flipping Pancakes is hard, Indiana University CS Club
- 2017 Combinatorics: Finding interesting patterns, Army Cyber Institute, West Point
- 2013 Origami constructions, Math Club, DePaul University
- 2013 Sums and difference equations, Math Club, DePaul University
- 2012 Nice things happen in large parties: Introduction to Ramsey Theory, Math Club, DePaul University
- 2011 Parking functions, Olivetti Club, Cornell University (best semester talk)
- 2010 Latin Squares and why we care, Olivetti Club, Cornell University
- 2010 Latin Squares and why we care, Graduate Student Intercollegiate Mathematics Seminar, Lehigh University
- 2009 Hook length formulas, Olivetti Club, Cornell University
- 2008 The RSK algorithm, Olivetti Club, Cornell University, Fall 2008.
- 2008 Some computational and combinatorial aspects of Coxeter groups, Olivetti Club, Cornell University
- 2007 Art gallery problems. Olivetti Club, Cornell University

TEACHING EXPERIENCE

Indiana University, Instructor

Combinatorics and Computing (fall 2019)

Elementary Discrete Structures (summer 2018, 2019)

Introduction to Artificial Intelligence (spring/spring 2018, fall/spring 2019)

Mathematical Foundations of Informatics (fall 2013, fall/spring 2014, fall/spring 2015, fall/spring 2016, fall/spring 2017)

Current Topics in Informatics/Tools for Computing: Games and Puzzles (spring 2016, fall/spring 2017)

Information Representation (spring 2014, 2015)

Elementary Discrete Structures, Honors (fall 2014, spring 2015)

Indiana University, Co-instructor

Elements of Artificial Intelligence (fall 2015)

Introduction to the Mathematics of Cybersecurity (spring 2017)

DePaul University, Instructor

Discrete Mathematics I (autumn 2011, winter/autumn 2012, winter/spring 2013)

Discrete Mathematics II (autumn 2011, winter/spring 2012, winter/spring 2013)

Business Calculus I (autumn/spring 2012)

Cornell University, Instructor

Calculus I (fall 2006, fall 2009)

Cornell University, Teaching Assistant

Calculus for Engineers (fall 2005)

Applicable Algebra (spring 2006)

Introduction to Algebra (spring 2007)

Combinatorics I (fall 2007)

Combinatorics II (spring 2008)

Computational Algebra (spring 2010)

Introduction to Cryptography (fall 2010)

Prove it! (spring 2011)

PROFESSIONAL SERVICE AND OUTREACH

Peer Review

Reviewer for ICLR 2019

Reviewer for IJCAI 2019

Reviewer for the SIGCSE, 2017, 2018, 2019

Submission reviewer for FPSAC 2017 and 2014, International Conference on Formal Power Series and Algebraic Combinatorics

Reviewer for the AMS Math Reviews

Article reviewer for The Electronic Journal of Combinatorics

Article reviewer for Advances in Applied Mathematics

Reviewer for the NSA Mathematical Sciences Grant Program, 2012

Student Research/Independent Studies

GTPA mentor for Gerson Martínez and Vanessa Sánchez, Indiana University, summer 2019

GTPA mentor for Akshay Patidar, Indiana University, summer 2018

Member of Sumit Gupta's MS thesis committee, Indiana University, summer 2016

Supervising Vinayak Vedantam's Undergraduate Independent Study Project, Indiana University, Summer and fall 2016.

Mentor to Ramiro Zahlouth in his project Stretching the Game of Nim, Indiana University, Summer 2016

Helped Prof. Kyle Petersen and Prof. Bridget Tenner in their research undergraduate summer group, DePaul University, summer 2012 and 2013.

To School and Department

OurCS Co-facilitator, IU CS Department, October 2018

Graduate Admissions Committee, Computer Science, 2018, 2019

Lecturer Hiring Committee, School of Informatics and Computing, Indiana University, spring 2016

Core Course Committee for I201: Mathematical Foundations of Informatics and I308: Information Representation, School of Informatics and Computing, Indiana University, fall 2015- spring 2017

Session Co-leader, School Associate Instructor's training, School of Informatics and Computing, Indiana University, fall 2014

Hiring Committee member, Assistant Director of Career Services, School of Informatics and Computing, Indiana University, spring 2015

Hiring Committee, Associate Director of Recruiting, School of Informatics and Computing, Indiana University, summer/fall 2015

Website Oversight Committee, School of Informatics and Computing, Indiana University, fall 2013-spring 2014

Helped the committee that redesigned the discrete mathematics courses at DePaul University, winter/spring 2013

Co-organizer, Olivetti Club, Cornell's Mathematics Department graduate student colloquium, spring 2011

Facilitator, Mathematics Department TA training, Cornell University, fall 2010

To the Community

Co-organizer, AMS Special Session *Algebraic and Enumerative Combinatorics with Applications*, Spring 2017, Bloomington, IN

Judge, MathFest 2016 student presentations in Combinatorics, Columbus, OH

Board member, *Escuelita para Todos*, Bloomington IN, fall 2016-present

Facilitator, Global Talks, Indiana University, fall 2014-fall 2017

Judge, 2010 Cornell Mathematical Contest in Modeling

4H facilitator, 2007, 2008.

Prepared the workshop *Did I count them all?*, Cornell's Professional Development Day 2007

PROFESSIONAL ASSOCIATIONS

Association for Computing Machinery

American Mathematical Society

Mathematical Association of America

LANGUAGES

Spanish: Native speaker

English: Fluent