HELEN JENNE

helenkjenne@gmail.com

EDUCATION

University of Oregon, Eugene, OR   2014-2020
Ph.D. in Mathematics, June 2020
M.S. in Mathematics, December 2017
Advisor: Dr. Benjamin Young

Budapest Semesters in Mathematics, Budapest, Hungary   2013-2014

Whitman College, Walla Walla, WA   2009-2013
B.A. in Mathematics and Psychology, May 2013
Graduated summa cum laude with honors in both majors
Advisors: Dr. Barry Balof (Mathematics), Dr. Melissa Clearfield (Psychology)

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher, CNRS, Institut Denis Poisson, University of Tours, France   Sept 2020-Aug 2021
Advisor: Dr. Kilian Raschel

Ph.D. Intern, Pacific Northwest National Laboratory, Seattle, WA   Summer 2015, 2017, 2018, 2019
Selected for the National Security Internship Program summers 2018 and 2019
Group: Data Sciences and Analytics
Advisor: Dr. Emilie Purvine
Projects:
Anomaly detection in network traffic data using tensor decomposition
Exploring anomaly detection and visualization in cyber network graphs
Particle tracking in streaming images
Graph models of the power grid

PROGRAMMING SKILLS

Computer Languages: Python, SageMath, MATLAB, R
Python libraries: Matplotlib, NetworkX, NumPy, PANDAS, SciKit-Learn, SciPy

AWARDS AND HONORS

Early Career Invited Lecture Award, University of British Columbia   Feb 2021

Jack and Peggy Borsting Award for Scholastic Excellence, University of Oregon Math Department June 2020

University of Oregon College of Arts and Sciences Dissertation Research Fellowship   Sept 2019-June 2020

Walter Brattain Merit Scholarship, Whitman College   2009-2013

PUBLICATIONS AND PREPRINTS

Mathematics:

Double-dimer condensation and the PT-DT correspondence, with G. Webb and B. Young. Submitted. arXiv preprint, arXiv:2109.11773, 2021.

The combinatorial PT-DT correspondence. Proceedings of FPSAC 2021, to appear.

Combinatorics of the double-dimer model. Advances in Mathematics, 392, 3 December 2021.

Combinatorics of the double-dimer model. Séminaire Lotharingien de Combinatoire, 84B (Proceedings of FPSAC 2020)

Matching complexes of trees and applications of the matching tree algorithm, with M. Jelić Milutinović, A. McDonough, and J. Vega. Submitted. arXiv preprint, arXiv:1905.10560v2, 2019.

Tilings, continued fractions, derangements, scramblings, and e, with B. Balof. In *Journal of Integer Sequences*, 17(2): Article 14.2.7, 2014.

PSYCHOLOGY:

Socioeconomic status affects means-end behavior across the first year, with M.W. Clearfield and S. Stanger. In *Journal of Applied Developmental Psychology*, 38:22-28, 2015.

Socioeconomic status affects oral and manual exploration across the first year, with M.W. Clearfield, L. Bailey, S. Stanger, and N. Tacke. In *Infant Mental Health Journal*, 35(1):63-69, 2014.

TALKS AND PRESENTATIONS

RESEARCH TALKS AND POSTERS:

3D lattice walks confined to an octant: nonrationality of the second critical exponent, Canadian Discrete and Algorithmic Mathematics Conference (Virtual), May 2021

The combinatorial Pandharipande-Thomas/Donaldson-Thomas correspondence
   AlCoVE 2021 (Virtual), June 2021
   Les Journées ALÉA (Virtual), Centre International de Recontres Mathématiques, March 2021
   Early Career Invited Lecture (Virtual), University of British Columbia, Feb 2021
   Bordeaux Combinatorial Days (Virtual), Laboratoire Bordelais de Recherche en Informatique, Feb 2021

Combinatorics of the dP3 Quiver
   Institut de Recerce en Informatique Fondamentale Enumerative and Analytical Combinatorics Seminar (Virtual), Université de Paris, Dec 2020
   Graduate Online Combinatorics Colloquium, Nov 2020

Double-dimer condensation and the dP3 Quiver
   Canadian Mathematical Society Winter Meeting, Enumerative Combinatorics Session (Virtual), Dec 2020
   Algebraic geometry and moduli seminar, ETH Zürich (Virtual), Nov 2020
   Séminaire DIMERS, Sorbonne University (Virtual), Oct 2020

Combinatorics of the double-dimer model.
   Dimers in Combinatorics and Cluster Algebras, University of Michigan (Virtual), Aug 2020
   FPSAC 2020 Online, July 2020
   University of Oregon Women in Graduate Sciences Science Slam, June 2020
   Discrete Math Seminar, University of Massachusetts Amherst, May 2020
   Combinatorics and Geometry Seminar, University of Washington, May 2020
   Combinatorics Seminar, UC Berkeley, March 2020
   Combinatorics Seminar, University of Minnesota, Feb 2020
   Combinatorics Seminar, University of Michigan, Nov 2019
   Algebra Seminar, University of Oregon, Nov 2019

Anomaly detection in network traffic data using tensor decomposition. Pacific Northwest National Laboratory National Security Internship Program (NSIP) Symposium, Sept 2019

Visualizing network traffic graphs using structural equivalence grouping. Pacific Northwest National Laboratory NSIP Poster Session, Aug 2018

Grove probabilities and the double-dimer model. Poster Session: Building Bridges II, July 2018

Combinatorics of the double-dimer model. Pacific Northwest Combinatorics Day, March 2018

Particle tracking in streaming images. Seattle Science Social at Pacific Northwest National Labs, Aug 2017

Tilings, continued fractions, derangements, scramblings, and e. SMP Graduate Education Mentoring Workshop during the Joint Mathematics Meetings, Jan 2015

EXPOSITORY TALKS:

The Dimer Model and Kuo Condensation. Combinatorics and Geometry Pre-Seminar, University of Washington, May 2020

Using vertex operators to prove MacMahon's plane partition generating function. Student Algebra and Combinatorics Seminar at University of Minnesota, Feb 2020

Topology of Matching Complexes. Student Combinatorics Seminar at University of Oregon, April 2019

Better binomials begin with Fibonacci. Student Combinatorics Seminar at University of Oregon, Oct 2018

The cube recurrence. Grad Notions Student Seminar at University of Oregon, March 2018

Graphical condensation. Student Combinatorics Seminar at University of Oregon, Feb 2017

Robinson-Schensted algorithm. Student Combinatorics Seminar at University of Oregon, Nov 2016

TEACHING EXPERIENCE

GRADUATE EMPLOYEE AT UNIVERSITY OF OREGON   Fall 2014-present

For each of the following courses, I was the instructor of record. As such, I was responsible for designing the syllabus and preparing and presenting the material, as well as writing and grading all homework, quizzes, and exams.

- Calculus I (Math 251), Winter 2017, Spring 2017, Winter 2019
- Discrete Math II (Math 232), Fall 2017
- Elementary Functions (Math 112), Spring 2015
- College Algebra (Math 111), Fall 2014, Winter 2015, Spring 2015, Fall 2018
- University Math I (Math 105), Summer 2016

I was a teaching assistant for the following courses:

- Introduction to Probability and Statistics (Math 243), Spring 2018
- Calculus for Business and Social Science (Math 241), Fall 2015, Winter 2016, Fall 2016

SERVICE

Member of the Organizing Committee for FPSAC 2020 Online   July 2020

Referee for Proceedings of teh American Mathematical Society, Journal of Combinatorial Theory A

Mentor in first-year graduate student mentoring program   Fall 2018-Spring 2020

Organizer of UO Student Combinatorics Seminar   Fall 2018-Spring 2019

UO Association for Women in Mathematics (AWM) Student Chapter
    Organizer of Reading Room   Fall 2019-present
    Member of K-12 Outreach Committee   Jan 2018-present
    Secretary   Fall 2017-Spring 2019

CONFERENCES AND WORKSHOPS ATTENDED

AMS Mathematics Research Communities: Combinatorial Applications of Computational Geometry and Algebraic Topology	June 2021
Canadian Discrete and Algorithmic Mathematics Conference (Virtual),	May 2021
Les Journées ALÉA (Virtual)	March 2021
Bordeaux Combinatorial Days (Virtual)	Feb 2021
Canadian Mathematical Society Winter Meeting (Virtual)	Dec 2020
Dimers in Combinatorics and Cluster Algebras, University of Michigan (Virtual)	Aug 2020
FPSAC 2020 Online	July 2020
MSRI Mathematics of Machine Learning, Seattle, WA	July 29-Aug 9 2019
FPSAC 2018, Hanover, NH	July 2018
Building Bridges II, Budapest, Hungary	July 2018
Graduate Research Workshop in Combinatorics, Ames, IA	May 2018
Pacific Northwest Combinatorics Day, Seattle, WA	March 31, 2018
AMS/MAA Joint Mathematics Meetings	Jan 2015, 2016, 2017
University of Nebraska IMMERSE, Lincoln City, NE	June-July 2014
Park City Math Institute Summer Session, Park City, UT	June-July 2013
Mount Holyoke Research Experience for Undergraduates, South Hadley, MA	June-Aug 2012
Carleton Summer Mathematics Program for Undergraduate Women, Northfield, MN	July 2011