

# HALEY COLGATE KOTTLER

haley.kottler@wisc.edu

## EDUCATION

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### University of Wisconsin-Madison

Doctoral Program in Mathematics

*August 2020 - present*

Masters of Arts in Mathematics

*August 2022*

### Enhancing Diversity in Graduate Education

*Summer 2020*

### Colorado College

*May 2020*

Bachelor of Arts with Distinction in Mathematics, cum laude

*GPA: 3.9*

Pi Mu Epsilon, Phi Beta Kappa

## RESEARCH FOCUS

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Current work focuses on addressing societal problems using applied probability, causal inference, modeling, and machine learning.

## RESEARCH EXPERIENCE

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### Research Assistant

*University of Wisconsin - Madison*

Institute for Foundations of Data Science

*Spring 2023*

Advisors: Amy Cochran and Jose Israel Rodriguez

### Research Assistant

*University of Wisconsin - Madison*

Advisor: Jose Israel Rodriguez

*Summer 2022*

### Research Assistant

*University of Wisconsin - Madison*

Advisor: Amy Cochran

*Spring 2021*

### Student Collaborative Research

*Colorado College*

Advisor: Beth Malmskog

*Summer 2019*

### REU in Coding, Cryptography, and Number Theory

*Clemson University*

Advisor: Felice Manganiello

*Summer 2018*

## PUBLICATIONS

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Colorado in context: Congressional redistricting and competing fairness criteria in Colorado. by Jeanne Clelland, **Haley Colgate**, Daryl DeFord, Beth Malmskog, and Flavia Sancier-Barbosa. (Authors alphabetical by last name.) Journal of Computational Social Science. 1-38 (2021).  
<https://doi.org/10.1007/s42001-021-00119-7>

Batch Codes from Affine Cartesian Codes and Quotient Spaces, by Travis Baumbaugh, **Haley Colgate**, Timothy Jackman, and Felice Manganiello. (Authors alphabetical by last name.) Cryptography and Coding - 18th IMA International Conference, IMACC 2021, Virtual Event, December 14-15, 2021, Proceedings, 13129(3-15), [https://doi.org/10.1007/978-3-030-92641-0\\_1](https://doi.org/10.1007/978-3-030-92641-0_1),

## WORKS IN PROGRESS

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Identifying Aberrant Approach-Avoidance Conflict Decision-Making in Psychopathology: A Review of Computational Approaches and the Role of Computational Errors, by Allison Letkiewicz, **Haley Colgate**, and Amy Cochran. (*under review*)

Implementation of Estimating Gaussian Mixtures Using Sparse Polynomial Moment Systems, by **Haley Kottler**, Julia Lindberg, and Jose Israel Rodriguez.

## TEACHING EXPERIENCE

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<b>Math 211: Calculus</b> <i>Head Teaching Assistant</i>	University of Wisconsin - Madison <i>Spring 2022, Fall 2022</i>
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<b>Math 211: Calculus</b> <i>Teaching Assistant</i>	University of Wisconsin - Madison <i>Fall 2021</i>
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<b>Math 221: Calculus and Analytic Geometry 1</b> <i>Teaching Assistant</i>	University of Wisconsin - Madison <i>Fall 2020</i>
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<b>Quantitative Reasoning Center</b> <i>Mathematics Tutor</i>	Colorado College, CO <i>Fall 2018 - Spring 2020</i>
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<b>Mathematics Department</b> <i>Grader</i>	Colorado College <i>Fall 2017 - Spring 2018</i>
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## PRESENTATIONS

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<b>UW Madison SIAM Seminar, Madison WI</b> <i>Gaussian Mixture Model Parameter Recovery</i>	November 2022
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<b>Algebraic Statistics Afternoon Impromptu, Madison, WI</b> <i>Method of Moments</i>	July 2022
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<b>Connecting Colorado for Fair Redistricting: A Public Symposium and Call to Action, Zoom</b> <i>Counting and Connecting: The US Census, Mapping, and Why Data Matters</i> Invited Speaker	September 2020
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<b>Joint Mathematics Meeting, Denver, CO</b> <i>Measuring Gerrymandering</i>	January 2020
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<b>Student Collaborative Research Symposium, Colorado College, CO</b> <i>Measuring Gerrymandering</i> Invited Speaker	September 2019
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<b>Mathfest, Cincinnati, OH</b> <i>Measuring Gerrymandering</i> Received a student speaker award from Pi Mu Epsilon.	August 2019
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<b>Student Collaborative Research Summer Presentations, Colorado College, CO</b> <i>Techniques for Measuring Gerrymandering</i>	July 2019
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**MAA Rocky Mountain Sectional Meeting, Durango, CO**

April 2019

*Emmy Noether and Differential Invariant Theory*

Joint poster with Sam Kottler, won Honorable Mention

**Math Club Speaker Series, Colorado College, CO**

October 2018

*Gödel's Incompleteness Theorem*

**AWARDS AND HONORS**

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UW - Madison Early Excellence Teaching Assistant Award	Spring 2022
Colorado College Phi Beta Kappa	2020
Colorado College Barbara Whitten Prize for Women in the Natural Sciences	2020
Colorado College Florian Cajori Award	2020
Colorado College Cajori-Hills-Schneider Scholarship	Fall 2018 - Spring 2020
Colorado College Winona Jewett Finch Scholarship	Fall 2017 - Spring 2020
National Merit Scholarship	Fall 2016 - Spring 2020
Colorado College Dean's List	Fall 2016 - Spring 2019
Colorado College Euclid Scholarship	2018
Pi Mu Epsilon Honor Society Member	2018

**LEADERSHIP**

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UW-Madison Undergraduate Mentoring Program Founder and Mentor	Summer 2022-present
Colorado College Association for Women in Mathematics Chapter Co-President	Spring 2019-Spring 2020
Colorado College Pi Mu Epsilon Honor Society Chapter President	Spring 2019-Spring 2020
Colorado College Math Club Secretary	Fall 2017-Spring 2018

**SERVICE**

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Student representative for the Graduate Program Committee University of Wisconsin - Madison	Fall 2022 - present
Problem writer and grader for the Mega Math Meet University of Wisconsin - Madison	Spring 2022