

# Kelly Spendlove

PHD CANDIDATE · RUTGERS UNIVERSITY

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## Education

### Rutgers University

JOINT PH.D. CANDIDATE IN MATHEMATICS & QUANTITATIVE BIOMEDICINE

New Brunswick, NJ

Aug 2013-Present

### Montana State University

M.S. + B.S. IN MATHEMATICS

- highest honors

Bozeman, MT

Aug 2007 - May 2013

## Honors & Awards

### FELLOWSHIPS

- 2014 **NSF Graduate Research Fellowship**, Rutgers University
- 2013 **GAANN Fellowship**, BioMaPS, Rutgers University
- 2013 **NSF East Asia and Pacific Summer Institutes (EAPSI) Fellowship**, Kyoto University
- 2012 **Meritorius Graduate Fellowship**, Montana State University

### AWARDS

- 2017 **NSF Graduate Research Opportunities Worldwide (GROW)**, Vrije Universiteit (VU) Amsterdam
- 2013 **Bill Stannard Award for Excellence in Graduate Student Professional Presentations**, Department of Mathematical Sciences, Montana State University

## Publications

### COMPUTATIONAL CONNECTION MATRIX THEORY WITH APPLICATIONS TO TRANSVERSALITY MODELS

- with S Harker, K Mischaikow, and R Vandervorst
- In preparation (2018)

### DISCRETE MORSE THEORY FOR COMPUTING CONNECTION MATRICES

- with S Harker and K Mischaikow
- In preparation (2018)

### A COMPUTATIONAL FRAMEWORK FOR CONNECTION MATRIX THEORY

- with S Harker and K Mischaikow
- Under review, arXiv:1810.04552 [math.AT] (2018)

### ON THE EFFICACY OF STATE SPACE RECONSTRUCTION METHODS IN DETERMINING CAUSALITY

- with B Cummins and T Gedeon
- SIAM Journal on Applied Dynamical Systems 14 (1), 335-381 (2015)

### PREDICTING HIGH-CODIMENSION CRITICAL TRANSITIONS IN DYNAMICAL SYSTEMS USING ACTIVE LEARNING

- with J. Berwald and T. Gedeon
- Mathematical and Computer Modelling of Dynamical Systems 19 (6), 557-574 (2013)

### EXTENDING THE LIFETIME OF A WSN BY PARTIAL COVERS

- with B Mumey and B Zhu
- Proceedings of IEEE International Conference on Communications (ICC), 2013, 1779-1783

### AN EXACT ALGORITHM FOR RECONSTRUCTING GENOMIC SCAFFOLDS

- with Z Liu, B Mumey and B Zhu
- Proceedings of 4th International Conference on Bioinformatics and Computational Biology (BICoB 2012)

## Recent Talks

### Computational Connection Matrix Theory

AMS SECTIONAL MEETING

Newark DE

Sep 2018

### A Computational Framework for Connection Matrices

ALGEBRAIC TOPOLOGY IN DYNAMICS AND DATA

Bozeman MT

Jul 2018

## A Computational Framework for Connection Matrices

ALGEBRAIC TOPOLOGY: METHODS, COMPUTATION, AND SCIENCE (ATMCS 8)

IST Austria

Jun 2018

## A Computational Framework for Connection Matrices

DYNAMICS, TOPOLOGY AND COMPUTATIONS

Bedlewo Poland

Jun 2018

## Computing Connection Matrices

APPLIED ALGEBRAIC TOPOLOGY CONFERENCE

Hokkaido Japan

Aug 2017

## Toward a Computational Homology Theory of Dynamics

MBI VISITOR SERIES

The Ohio State University

Dec 2016

## Teaching

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Fall 2018	<b>TA for Calculus I for the Mathematical and Physical Sciences</b> , Rutgers University
Spr 2018	<b>TA for Calculus II</b> , VU University Amsterdam
Spr 2018	<b>TA for Linear Algebra for Business Analytics</b> , VU University Amsterdam
Fall 2017	<b>TA for Differential Equations for Engineering and Physics</b> , Rutgers University
Sum 2017	<b>Instructor for Introduction to Abstract Algebra</b> , Rutgers University
Fall 2012	<b>Instructor for College Algebra</b> , Montana State University

## Research Visits

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2018	<b>VU Amsterdam</b> , GROW Fellow, (R. Vandervorst)
Fall 2016	<b>Mathematical Biosciences Institute (MBI), The Ohio State University</b> , Long Term Visitor, (Emphasis Semester on Analysis of Complex Data in Biological Systems)
Summer 2015	<b>INRIA Geometria, École Polytechnique</b> , (F Chazal)
Summer 2013	<b>Kyoto University</b> , EAPSI Fellow (H Kokubu)
Summer 2012	<b>The College of William &amp; Mary</b> , (S Day)

## Misc. Honors & Awards

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### HONORS

2011-2012	<b>Hughes Scholar Research &amp; Outreach Fellowship</b> , Howard Hughes Medical Institute, Montana State University
2011	<b>IDEA Networks of Biomedical Research Excellence Fellowship</b> , Applied Algorithms Laboratory, Montana State University

### AWARDS

2016	<b>NSF-CBMS Conference Travel Award</b> , UT Austin
2015	<b>NSF Data Science Workshop Travel Award</b> , University of Washington
2014	<b>IMA Travel Award</b> , Institute for Mathematics and its Applications, University of Minnesota
2012	<b>Outstanding Graduating Senior with Distinction</b> , Department of Mathematical Sciences, Montana State University

## Service and Outreach

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Fall 2018	<b>Organizer for Directed Reading Program</b> , Rutgers University
Fall 2017	<b>Mentor for Directed Reading Program</b> , Directed undergraduate in combinatorial Hodge theory project
Feb 2013	<b>'How to Be Successful in a Math Course'</b> , Organized popular workshop at Montana State University for
Oct 2012	incoming first-year students concerning how to prepare for college math courses