Kelly Spendlove

PhD Candidate · Rutgers University

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Education

Rutgers University *New Brunswick, NJ*

Joint Ph.D. Candidate in Mathematics & Quantitative Biomedicine *Aug 2013-Present*

Montana State University *Bozeman, MT*

M.S. + B.S. in Mathematics *Aug 2007 - May 2013*
- highest honors

Honors & Awards

Fellowships

2014	**NSF Graduate Research Fellowship**, Rutgers University	
2013	**GAANN Fellowship**, BioMaPS, Rutgers University	
2013	**NSF East Asis 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 Profession 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 *Newark DE*

AMS Sectional Meeting *Sep 2018*

A Computational Framework for Connection Matrices *Bozeman MT*

Algebraic Topology in Dynamics and Data *Jul 2018*

A Computational Framework for Connection Matrices *IST Austria*
ALGEBRAIC TOPOLOGY: METHODS, COMPUTATION, AND SCIENCE (ATMCS 8) *Jun 2018*

A Computational Framework for Connection Matrices *Bedlewo Poland*
DYNAMICS, TOPOLOGY AND COMPUTATIONS *Jun 2018*

Computing Connection Matrices *Hokkaido Japan*
APPLIED ALGEBRAIC TOPLOGY CONFERENCE *Aug 2017*

Toward a Computational Homology Theory of Dynamics *The Ohio State University*
MBI VISITOR SERIES *Dec 2016*

Teaching

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

Research Visits

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

Misc. Honors & Awards

HONORS

2011-2012	**Hughes Scholar Research & Outreach Fellowship,** Howard Hughes Medical Institute, Montana State University
2011	**IDeA Networks of Biomedical Research Excellence Fellowship,** Applied Algorithms Laboratory, Montana State University

AWARDS

2016	**NSF-CBMS Conference Travel Award,** UT Austin
2015	**NSF Data Science Workshop Travel Award,** University of Washington
2014	**IMA Travel Award,** Institute for Mathematics and its Applications, University of Minnesota
2013	**Bill Stannard Award for Excellence in Graduate Student Profession Presentations,** Department of Mathematical Sciences, Montana State University
2012	**Outstanding Graduating Senior with Distinction,** Department of Mathematical Sciences, Montana State University

Service and Outreach

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