Curriculum Vitae

Rachel Levanger

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Professional Preparation

Rutgers State University of New Jersey	Mathematics	Ph.D. (2017)
University of North Florida	Mathematics & Art History	B.A. 2012

Appointments and Employment

Rutgers University*, Graduate Assistant, Adviser: Konstantin Mischaikow*	Spring 2017
Rutgers University, *TA for Calculus III*	Fall 2016
NSF EAPSI Fellow*, Host: Takashi Ishihara, Nagoya University, Japan*	Summer 2016
Rutgers University, *Graduate Assistant, Adviser: Konstantin Mischaikow*	Fall 2015 – Spring 2016
RYSP, Rutgers University, *Instructor for Graph Algorithms*	Summer 2015
DIMACS REU, *Graduate Student Mentor*	Summer 2015
Rutgers University, *TA for Calculus II for Math/Science Majors*	Fall 2014
DIMACS REU, *Graduate Student Coordinator*	Summer 2014
Fidelity National Financial, *Statistical Data Analyst Intern*	Summer 2012
University of North Florida, *Grader for Calculus II and Probability*	Spring 2012
University of North Florida, *Grader for Advanced Calculus*	Fall 2011
Fidelity National Financial, *Business Systems Analyst*	2005 - 2011
Wells Fargo Services Company, *Business Systems Analyst*	2001 - 2005

Publications

S. Harker, M. Kramar, R. Levanger, K. Mischaikow, *"An adaptive subsample approximation for large Vietoris-Rips Filtrations,"* in preparation.

S. Harker, M. Kramar, R. Levanger, K. Mischaikow, *"A Comparison Framework for Interleaved Persistence Modules,"* in preparation.

M. Kramar, R. Levanger, J. Tithof, B. Suri, M. Xu, M. Paul, M.Schatz, K. Mischaikow, "*Analysis of Kolmogorov Flow and Rayleigh-Bénard Convection using Persistent Homology,*" accepted, Physica D: Nonlinear Phenomena, 2016.

R. Dumitru, R. Levanger, and B. Visinescu, "*On singular value inequalities for matrix means," Linear Algebra and its Applications*, 439(8), Oct 15, 2405-2410 (2013).

Awards & Fellowships

Recipient of the Janice Pattwell Annual Mathematics Fellowship — 2013 - 2014
Rutgers University, Department of Mathematics

University Diversity Fellowship — 2013 - 2015
Rutgers University Graduate School of Arts and Sciences

Outstanding Undergraduate Student in Mathematics — Apr 2012
University of North Florida Mathematics & Statistics Department

Student Speaker Award — Aug 2011
Pi Mu Epsilon National Meeting at MathFest 2011, Lexington, KY.

Undergraduate Scholarships for Analysis & Probability — May 2011
University of North Florida Mathematics & Statistics Department

UNF College of Arts & Sciences, Willard O. Ash Award — Nov 2010
Award recognizing a senior who embodies Dean Ash's philosophy of a broad-based education in the liberal arts and sciences.

Selected Talks

Tracking Errors in the space of Persistence Diagrams, *Patterns and Waves 2016, Hokkaido Universty, Sapporo, Japan* — Aug. 1-5, 2016

Recent Developments in Topological Data Analysis, *High-Dimensional Data Analysis (HDDA VI), Fields Institute, Toronto* — May 25-27, 2016

A Comparison Framework for Interleaved Persistence Modules. — Apr. 11, 2016
Applied topology seminar, University of Pennsylvania.

Auslander-Reiten Quivers of finite-dimensional algebras. — Mar. 23, 2016
Algebra seminar, Rutgers University.

Generalizations of the induced matching and algebraic stability theorems. — Mar. 10, 2016
MacPherson seminar, Institute for Advanced Study.

Dynamics of 2D fluid simulations through persistent homology. — Oct. 23, 2015
Applied topology seminar, Columbia Medical University.

Using Persistent Homology to study dynamics in the space of persistence diagrams, Parts I & II. *Algebraic Topology & High-Dimensional Data Analysis (HDDA V), University of Victoria, Victoria, BC* — Aug. 17-28, 2015

Bent out of Shape: Taking a look at Perturbed Eigenvalues — Feb. 18, 2012
Florida MAA Conference Student Speaker, University of North Florida

Imagining the Banach-Tarski Paradox — Aug. 4, 2011
Student Speaker, Pi Mu Epsilon National Meeting at MathFest 2011

Service

Co-organizer for New York Applied Topology seminar, — Fall 2015 – Spring 2016
Columbia University Medical Center

Co-organizer for AMS Special Session on Topological Data Analysis: Computations, Statistics and Applications, *Rutgers University* — Nov. 2015

Directed Reading Program, *Rutgers University* — Fall 2014 – Spring 2016

Pi Mu Epsilon Florida Eta Chapter, *President* — 2011 - 2012

Pi Mu Epsilon Florida Eta Chapter, *Vice President* — 2011

Programming and Technical Experience

Experience with MATLAB, Mathematica, Maple, Microsoft Office Suite (Excel, Word, Access, Visio), and Microsoft SQL Server. Experience running distributed computations in HPC environments.

Programming experience in Python, shell scripting, R, LaTeX, SQL, C++, VB, and JAVA. Data modeling experience with relational databases and domain models (UML).