

CONTACT
INFORMATION

Department of Mathematics
Rice University
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EDUCATION

Ph.D. in Mathematics, Rice University, May 2012 (anticipated).

M.A. in Mathematics, Rice University, May 2010.

B.A. in Mathematics and Economics, Williams College, May 2007.

RESEARCH
INTERESTS

Partial Differential Equations, Geometric Measure Theory, Analysis in Metric Spaces

RESEARCH
EXPERIENCE

- **Graduate Research**, Rice University, 2007-present. Dr. Robert Hardt, adviser.
- **Park City Mathematics Institute**, Park City, Utah, Summer 2010. A conference on image processing. Attended lectures on total variation minimization, compressive sensing, sparsity, learning, wavelets, and statistical methods.
- **Undergraduate Research**, Williams College, 2006-2007. Summer SMALL REU on isoperimetric problems, and honors thesis on blowups in moduli spaces.

TEACHING

- **Instructor** **Rice University**
 - MATH 211: Ordinary Differential Equations and Linear Algebra, Fall 2010; Sole instructor of a regular semester course.
- **Rice University Summer School**
 - MATH 355: Linear Algebra, Summer 2011; Sole instructor, organized course schedule and syllabus, maintained course website, wrote and graded assignments and exams.
 - MATH 211: Ordinary Differential Equations and Linear Algebra, Summer 2010; Sole instructor, organized course schedule and syllabus, maintained course website, wrote and graded assignments and exams.
 - MATH 355: Linear Algebra, Summer 2009; Sole instructor, organized course schedule and syllabus, maintained course website, wrote and graded assignments and exams.
- **Undergraduate Research** **Rice University**
 - VIGRE Calculus of Variations research, Summer 2011: Helped guide a group of 5 undergraduates in investigating an open problem in the calculus of variations. Included three daily meetings, and helping the students give presentations on their research.
- **Teaching Assistant** **Rice University**
 - Partial Differential Equations, MATH 381, Fall 2011.
 - Real Analysis, MATH 302, Spring 2011.
 - Calculus of Variations, MATH 410, Spring 2010.

- Vector Calculus, MATH 212, Fall 2009.
- Vector Calculus, MATH 212, Spring 2009.
- Ordinary Differential Equations and Linear Algebra, MATH 211, Fall 2008.
- Ordinary Differential Equations and Linear Algebra, MATH 211, Spring 2008.
- Single Variable Calculus, MATH 101, Fall 2007.

- **Tutor**

Williams College

- Worked the the Williams College Math/Science Resource Center as a tutor for undergraduates, fall 2004-spring 2007.

Rice University

- Have tutored students in partial differential equations and computational neuroscience.

SERVICE (RICE UNIVERSITY)

- Graduate Math Association founding member and president, 2007-2009
 - Group aimed at encouraging interaction between departments of Mathematics, Computational and Applied Mathematics, and Statistics.
 - Spring 2008: Co-organized lecture series on imaging, featuring a speaker from each department, to support upcoming VIGRE theme at Rice
 - Fall 2008: Co-organized question and answer session for graduate students on post-doctoral positions with instructors from each department
 - Spring 2009: Organized lecture on the geometry of large data sets, to support upcoming VIGRE theme at Rice
- Graduate Teaching Seminar Participant, Fall 2007-Spring 2009

PAPERS

From SMALL REU, with Adam Jacob, Connor Quinn and Robin Walters, *The isoperimetric problem on planes with density*. Bull. Austral. Math. Soc. **78** (2008) 177-197.

PRESENTATIONS

- *The Navier-Stokes Equation*. Current Mathematics Seminar, Rice University, Houston, TX, September 22, 2011.
- *An Introduction to Geometric Measure Theory*. Invited speaker, Undergraduate Math Seminar, Trinity University, San Antonio, TX, March 31, 2011.
- *Coarea minimizers in Euclidean and Metric Spaces*. Invited speaker, ERC School on Analysis in Metric Spaces and Geometric Measure Theory, Centro di Ricerca Matematica Ennio De Giorgi, Pisa, Italy, January 13, 2011.
- *Total Variation Regularization in Image Processing*. Current Mathematics Seminar, Rice University, Houston, TX, December 4, 2010.
- *An Introduction to Geometric Measure Theory*. Current Mathematics Seminar, Rice University, Houston, TX, February 11, 2010.
- *A Brief History of Infinity*. Graduate Teaching Seminar, Rice University, Houston, TX, February 10, 2009. Introductory lecture given to undergraduates to supplement calculus course.
- *Lie Groups and Lie Algebras*. Current Mathematics Seminar, Rice University, Houston, TX, January 22, 2009.

- *An Introduction to Equidistribution*. Math/Stat/Comp. Sci Mini-Conference, Williams College, Williamstown, MA, June 9, 2008.
- *Effective Equidistribution*. Current Mathematics Seminar, Rice University, Houston, TX, March 13, 2008.
- *The Isoperimetric Problem on Spheres*. MAA Mathfest, Nashville, TN, August 10, 2006. Part of invited paper session on isoperimetric problems.

FELLOWSHIPS AND
HONORS

- **NSF VIGRE Fellowship**, Vertical Integration of Research and Education in Mathematical Sciences, Rice University, 2011.
- **Graduate Fellowship**, Rice University, 2007-present.
- **Summer Research Assistantship**, Rice University, Summers 2008-2011.
- **Sigma Xi Society Membership**, for undergraduate honors thesis.

PROFESSIONAL
ORGANIZATIONS

- American Mathematical Society, 2007-present
- Mathematical Association of America, 2007-present