

CURRICULUM VITAE

AMIT PATEL

Assistant Professor
Department of Mathematics
Colorado State University

Born in Chicago, IL

EDUCATION

Doctor of Philosophy May 2010
Computer Science, Duke University
Advisor: Herbert Edelsbrunner

Master of Science May 2003
Computer Science, University of Illinois at Urbana-Champaign
Advisor: Jeff Erickson

Bachelor of Science May 2001
Computer Science, University of Illinois at Urbana-Champaign

ACADEMIC HISTORY

Member September 2014 - June 2016
School of Mathematics
Institute for Advanced Study
Under supervision of Robert MacPherson

Postdoctoral Fellow September 2013 - August 2014
Institute for Mathematics and its Applications
University of Minnesota
Theme: Scientific and Engineering Applications of Algebraic Topology

Postdoc and Coadjunct Professor September 2011 - June 2013
Rutgers University
Department of Mathematics
Under supervision of Konstantin Mischaikow

Postdoctoral Researcher September 2010 - August 2011
GEOMETRICA
INRIA-Saclay
Under supervision of Frédéric Chazal

Postdoctoral Researcher May 2010 - August 2010
Institute of Science and Technology Austria
Under supervision of Herbert Edelsbrunner

Date: May 2017.

Visiting Grad Student
Institute of Science and Technology Austria
Under supervision of Herbert Edelsbrunner

August 2009 - January 2010

Visiting Grad Student
Berlin Mathematical School
Under supervision of Herbert Edelsbrunner

August 2007 - July 2008

Intern
Lawrence Livermore National Laboratories
Under supervision of Valerio Pascucci

May 2006 - August 2006

ADVISEES

Dustin Sauriol
Alex McCleary

PUBLICATIONS

11. Amit Patel. *Generalized Persistence Diagrams*. Accepted to the Journal of Applied and Computational Topology. Waiting Publication.
10. Justin Curry, Amit Patel. *Classification of Constructible Cosheaves*. arXiv:1603.01587. Under revision.
9. Vin de Silva, Elizabeth Munch, Amit Patel. *Categorified Reeb Graphs*. In the journal Discrete & Computational Geometry, June 2016, Volume 55, Issue 4, pp 854-906.
8. Paul Bendich, Herbert Edelsbrunner, Dmitriy Morozov, Amit Patel. *Homology and Robustness of Level and Interlevel Sets*. In the journal Homology Homotopy Appl., Volume 15, Number 1, 2013, Pages 51 - 72.
7. Frédéric Chazal, Amit Patel, Primoz Skraba. *Computing well diagrams for vector fields on \mathbb{R}^n* . In the journal Applied Mathematics Letters, Volume 25, Issue 11, November 2012, Pages 1725 - 1728.
6. Herbert Edelsbrunner, Dmitriy Morozov, Amit Patel. *Quantifying Transversality by Measuring the Robustness of Intersections*. In the journal Foundations of Computational Mathematics, Volume 11, Issue 3, June 2011.
5. Herbert Edelsbrunner, Dmitriy Morozov, Amit Patel. *The Stability of the Apparent Contour of an Orientable 2-Manifold*. In Topological Methods in Data Analysis and Visualization: Theory, Algorithms, and Applications, eds. V. Pascucci, X. Tricoche, H. Hagen, and J. Tierny. Springer-Verlag, Heidelberg, Germany, 2011.
4. Amit Patel. *Reeb Spaces and the Robustness of Preimages*, PhD thesis, Duke University, May 2010.
3. Paul Bendich, Herbert Edelsbrunner, Micheal Kerber, Amit Patel. *Persistent Homology Under Non-Uniform Error*. In Proceedings of the 35th International Symposium on Mathematical Foundations of Computer Science, 2010, pp. 12-23.

2. Paul Bendich, Herbert Edelsbrunner, Dmitriy Morozov, Amit Patel. *Robustness of Level Sets*. In Proceedings of the 18th Annual European Symposium on Algorithms, 2010, 1-10.
1. Herbert Edelsbrunner, John Harer, Amit Patel. *Reeb Spaces of Piecewise Linear Mappings*. In Proceedings of the 24th Annual Symposium on Computational Geometry, 2008, 242-250.

INVITED TALKS

<p><i>Generalized Persistence Diagrams</i> Topological Data Analysis: Developing Abstract Foundations Banff International Research Station</p>	<p>August 1, 2017</p>
<p><i>Generalized Persistence Diagrams</i> Foundations of Computational Mathematics Barcelona, Spain</p>	<p>July 10, 2017</p>
<p><i>Generalized Persistence Diagrams</i> Applied Algebraic Topology Network (webinar) Sponsored by the Institute for Mathematics and its Applications</p>	<p>January 31, 2017</p>
<p><i>Classification of Constructible Cosheaves</i> AMS Special Session on Sheaves in Topological Data Analysis Joint Mathematics Meetings</p>	<p>January 4–5, 2017</p>
<p><i>Semicontinuity of Persistence Diagrams</i> SIAM Central States Section Little Rock, Arkansas</p>	<p>October 2, 2016</p>
<p><i>Semicontinuity of Persistence Diagrams</i> Topology, Geometry, and Data Analysis @ OSU Columbus, Ohio</p>	<p>May 16 - 20, 2016</p>
<p><i>Persistence for Maps</i> Dynamics, Topology, and Computations Bedlewo, Poland</p>	<p>June 15 - 20, 2015</p>
<p><i>Persistent Objects</i> Foundations of Computational Mathematics Conference Universidad de la República in Montevideo</p>	<p>December 15 - 17, 2014</p>
<p><i>TBA</i> Topology Seminar Princeton University</p>	<p>December 4, 2014</p>
<p><i>Persistence for Maps to Manifolds</i> Workshop: Generalized Persistence and Applications American Institute of Mathematics</p>	<p>September 15 - 19, 2014</p>

<i>The Quillen 2-Construction for Persistence</i> Algebraic Topology - Methods, Computation and Science 6 Pacific Institute for the Mathematical Sciences	May 26 - 30, 2014
<i>Persistent Sheaves for Stratified Maps</i> Topology Seminar University of Minnesota	April 14, 2014
<i>Computing Well Diagrams for the Fixed Points of a Vector Field</i> Geometry and Topology Seminar Tulane University	April 3, 2014
<i>Persistent Sheaves</i> Topology, Geometry and Data Seminar Ohio State University	February 28, 2014
<i>Connecting Persistent Homology Groups</i> Workshop on Topological Data Analysis Institute for Mathematics and its Applications	October 7 - 11, 2013
<i>Multidimensional Persistence and Sheaves</i> (series of lectures) MacPherson Seminar Institute for Advanced Study	April - May, 2013
<i>Measuring the Stability of Intersections to C^0 Perturbations</i> Applied and Computational Topology 2013 SIAM Conference on Applied Algebraic Geometry	August 1 - 4, 2013
<i>The Étalage of a Map</i> Topological Data Analysis and Machine Learning Theory Bannf International Research Station	October 14 - 19, 2012
<i>Sheaves and Persistence</i> Applied Algebraic Topology – The Next Generation SIAM Financial Mathematics and Engineering	July 9 - 11, 2012
<i>Well Groups</i> Workshop on Computational Topology Symposium of Computational Geometry	June 17 - 20, 2012
<i>Well Groups for Mappings to Euclidean Spaces</i> Workshop on Computational Topology Fields Institute	November 7 - 11, 2011
<i>Algebraic Well Groups</i> SIAM Conference on Applied Algebraic Geometry	October 6 - 9, 2011
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