Ravi Srinivasan

Department of Statistics and Data Sciences
University of Texas at Austin
Austin, TX 78712, USA

Email: rav@math.utexas.edu
Social: @rvsrnvsn {twitter, linkedin, github}
Web: http://www.ma.utexas.edu/users/rav/

Personal

United States citizen.

Education

Ph.D., Applied Mathematics, Brown University, 2009.

Thesis: Closure and complete integrability in Burgers turbulence; *Advisor:* Govind Menon

Sc.M., Applied Mathematics, Brown University, 2005.

B.S., Mathematics, Worcester Polytechnic Institute (WPI), 2004.

Employment

Research Fellow, Statistics and Data Sciences (L.A. Meyers Lab), University of Texas at Austin, Spring 2014–present.

Instructor/Postdoctoral Fellow, Mathematics, University of Texas at Austin, Spring 2010–Fall 2013.

Researcher, Statistical and Applied Mathematical Sciences Institute (SAMSI), Fall 2009.

Visiting Scholar, Duke University, Fall 2009.

Publications

Research summary available at http://www.ma.utexas.edu/users/rav/research.html.

1. Disease surveillance on complex social networks (with J.L. Herrera, J.S. Brownstein, A. Galvani, and L.A. Meyers), *preprint*.
2. Self-similarity in kinetic models of information-exchange processes (with I. Gamba), *preprint*.
3. An invariant in shock clustering and Burgers turbulence, Nonlinearity, 2012.
4. Rates of convergence for Smoluchowski's coagulation equations, SIAM J. Math. Analysis, 2011.
5. Kinetic theory and Lax equations for shock clustering and Burgers turbulence (with G. Menon), J. Stat. Phys., 2010.
6. Simple models with cascade of energy and anomalous dissipation, WHOI Technical Reports, 2005.

Software

Disease surveillance and data source optimization tools for Defense Threat Reduction Agency (DTRA) (development in Python), 2014-present.

Sample size calculators for Association of Public Health Labratories (APHL) (development in Excel and VBA), 2014-15.

Technical skills

Python (Pandas, scikit-learn, StatsModels, NetworkX), R, igraph, MATLAB, D3 (JavaScript).

Teaching

Teaching evaluations available at `http://www.ma.utexas.edu/users/rav/teaching.html`.

Instructor, University of Texas at Austin

Topics in Complex Networks (M375T/396C); Spring 2013.

Keywords: Erdős-Rényi random graphs, clustering, small-worlds, preferential attachment and power laws, node and edge ranking, community detection, modularity, spectral clustering, epidemics and contagion on graphs, submodular optimization.

Applied Linear Algebra (M346); Spring 2012, Summer 2012, Spring 2013.

Keywords: Linear transformations, Jordan normal form, Markov chains and PageRank, least squares, spectral theory, singular value decomposition, Fourier transform.

Linear Algebra and Matrix Theory (M341); Fall 2012, Summer 2013.

Probability I (M362K); Spring 2010, Spring 2011.

Keywords: Independence, Bayes' rule, random sampling and law of large numbers, central limit theorem, Poisson process, order statistics, conditional expectation, covariance and correlation.

Advanced Calculus for Applications II (M427L); Fall 2011.

Keywords: Lagrange multipliers, gradient, divergence, curl, line and surface integrals, Green's and Stokes' theorems, divergence theorem.

Sequences, Series, and Multivariable Calculus (M408D); Fall 2010.

Teaching Assistant, Brown University

Statistical Inference I & II (APMA1650/1660); Fall 2005, Spring 2006, Fall 2007.

Keywords: Parameter estimation, hypothesis testing, likelihood ratios, nonparametric methods, ANOVA, experimental design.

Mentoring and service

Undergraduate research: A. Reis (network science), Fall 2012; P. Najavar (Markov chains), Summer 2012; V. Stowe (linear programming), Summer 2013.

Events organized: Winter school on 'Kinetic models in social and economic systems' (co-organized with D. Armbruster and I. Gamba), UT Austin, Feb. 2013; Minisymposium on 'Stochastic coalescence and random growth models' (co-organized with R. Pego), ICIAM 2011, Vancouver, BC, Canada, Jul. 2011.

Awards

Geophysical Fluid Dynamics Fellowship, Woods Hole Oceanographic Institution, 2005.

Barry M. Goldwater Scholarship, 2003–04.

Trustees' Scholarship (full-tuition), WPI, 2000–04.

Invited talks

Conferences

'Mathematics in data science,' ICERM, Providence, RI, Jul. 2015 (pending).

'Disease surveillance,' ISMP 2015, Pittsburgh, PA, Jul. 2015 (pending).

'Workshop on agent-based modeling,' Brown University, Providence, RI, March 2015.

'PDEs in the social and life sciences: emergent challenges,' BIRS, Banff, AB, Canada, Apr. 2013.

'Kinetic theory for the emergence of complex behavior in social and economic systems,' ASU, Phoenix, AZ, Feb. 2013.

'Fluid dynamics: deterministic and stochastic perspectives,' SIAM PD11, San Diego, CA, Nov. 2011.

'Novel applications of kinetic theory and computations,' ICERM, Providence, RI, Oct. 2011.

'Completely integrable systems and applications,' Erwin Schrödinger Institute, Vienna, Austria, Jul. 2011.

'Stochastic dynamics transition workshop,' SAMSI, Research Triangle Park, NC, Nov. 2010.

'Stochastic dynamics and coherent structures,' SIAM NW10, Philadelphia, PA, Aug. 2010.

'Analysis and modeling at the stochastic-continuum interface,' SIAM AN10, Pittsburgh, PA, Jul. 2010.

'Kinetic FRG meeting,' Brown University, Providence, RI, May 2010.

'Kinetic models and their analysis,' SIAM PD09, Miami, FL, Dec. 2009.

'Kinetics and statistical methods for complex particle systems,' COLAB Program, Lisboa, Portugal, Jul. 2009.

Seminars

Georgia Tech, Stochastics Seminar, Nov. 2012.

University of Texas at Austin, Mathematical Physics Seminar, Apr. 2012.

University of Michigan, Applied Interdisciplinary Mathematics Seminar, Dec. 2011.

Duke University, Applied Mathematics and Analysis Seminar, Nov. 2010.

Carnegie Mellon University, CNA Seminar, Nov. 2009.

University of Texas at Austin, Mathematical Physics Seminar, Nov. 2009.

Brown University, LCDS Seminar, Oct. 2008.

Woods Hole Oceanographic Institution, GFD Lecture Series, Aug. 2005

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