

XI GENG

Curriculum Vitae

Department of Mathematical Sciences
Carnegie Mellon University, Pittsburgh, PA 15213, United States
Email: xig@andrew.cmu.edu or xigeng2015@gmail.com
(001) 412-535-1455

Personal:

- Born January 1989, Guangzhou, China.

Current Position:

- September 2016--present: Departmental Postdoctoral Associate, Carnegie Mellon University

Employment:

- October 2014--September 2016: Research Fellow under ERC grant with Prof. Terry Lyons FRS, University of Oxford

Education:

- October 2011--June 2016: Doctor of Philosophy, Mathematics, University of Oxford
Supervisor: Prof. Zhongmin Qian
- September 2007--June 2011: Bachelor of Science, Mathematics, Sun Yat-sen University (1st Honor)

Research Interests:

- Stochastic Analysis, Rough Path Theory and Their Applications

Preprints:

- H. Boedihardjo, X. Geng and N. Souris, The tail asymptotics for the signatures of some pure rough paths, preprint, 2018.
- X. Geng and G. Iyer, Long time asymptotics of heat kernels and Brownian winding numbers on manifolds with boundary, preprint, 2018.
- H. Boedihardjo and X. Geng, A non-vanishing property for the signature of a path, preprint, 2018, to appear in *Comptes rendus Mathematique*.
- H. Boedihardjo and X. Geng, The tail asymptotics of the Brownian signature, preprint, 2017, to appear in *Trans. Amer. Math. Soc.*
- H. Boedihardjo, X. Geng, X. Liu and Z. Qian, A quasi-sure non-degeneracy property for the Brownian rough path, preprint, 2016, to appear in *Potential Anal.*

Publications:

- X. Geng, Reconstruction for the signature of a rough path, *Proc. Lond. Math. Soc.* (3) 114: 495-526, 2017.
- X. Geng and Z. Qian, Finite dimensional characteristic functions of the Brownian rough path, *Front. Math. China* 12 (4): 859--877, 2017.
- H. Boedihardjo, X. Geng, T. Lyons and D. Yang, The signature of a rough path: uniqueness, *Adv. Math.*, 293: 720-737, 2016.
- X. Geng and Z. Qian, On an inversion theorem for Stratonovich's signatures of multidimensional diffusion paths, *Ann. Inst. Henri Poincaré Probab. Stat.*, 52 (1): 429--447, 2016.
- H. Boedihardjo, X. Geng and Z. Qian, Quasi-sure existence of Gaussian rough paths and large deviation principles for capacities, *Osaka J. Math.*, 53 (4): 941-970, 2016.
- H. Boedihardjo and X. Geng, The uniqueness of signature problem in the non-Markov setting, *Stochastic Process. Appl.*, 125 (12): 4674--4701, 2015.
- H. Boedihardjo and X. Geng, Simple piecewise geodesic interpolation of simple and Jordan curves with applications, *Constr. Approx.*, 42 (1): 161--180, 2015.
- X. Geng, Z. Qian and D. Yang, G-Brownian motion as rough paths and differential equations driven by G-Brownian motion, *Séminaire de Probabilités XLVI*, Lecture Notes in Mathematics, 125--193, 2014.

Invited Conference and Seminar Talks:

- Workshop on Theoretical and Applied Stochastic Analysis, Oaxaca, Sep 2018.
- Probability Seminar, University of Melbourne, Melbourne, Oct 2017.
- Probability Seminar, Purdue University, West Lafayette, Feb 2018.
- Probability Seminar, Fudan University, Shanghai, Dec 2017.
- Toulouse Workshop on Rough paths, Toulouse, Oct 2017.
- Conference on Stochastic Analysis and Its Applications to Mathematical Finance, Zhuhai, Jun 2017.
- Statistics Seminar, University of Illinois and Chicago, Nov 2017.
- Statistics Seminar, University of Illinois and Chicago, Apr 2017.
- Probability Seminar, Purdue University, West Lafayette, Nov 2016.
- Probability Seminar, University of Luxembourg, Luxembourg, May 2016.
- Conference on Rough Paths, Regularity Structures and Related Topics, Oberwolfach, May 2016.
- 38th Conference on Stochastic Processes and Their Applications, Contributed Talk, Oxford, Jul 2015.
- Conference on Random Dynamical Systems and Ergodicity, Loughborough, Jul 2015.
- 3rd Annual ERC Berlin-Oxford Young Researchers Meeting on Stochastic Analysis and Applications, Berlin, Jan 2015.
- 2nd Annual ERC Berlin-Oxford Young Researchers Meeting on Stochastic Analysis and Applications, Oxford, Jul 2014.

- Workshop on Probability and Its Applications, Oxford, Mar 2014.
- 1st Annual ERC Berlin-Oxford Young Researchers Meeting on Stochastic Analysis and Applications, Berlin, Dec 2013.
- Stochastic Analysis Seminar, Shandong University, Mar 2013.

Teaching:

- Spring 2018: Matrix Algebra with Applications, Instructor.
- Fall 2017: Stochastic Calculus, Instructor.
- Spring 2017: Differential Equations, Instructor.
- Fall 2016: Stochastic Calculus, Instructor.
- Michaelmas 2015: Martingales Through Measure Theory, Tutor.
- Hilary 2014: Differentiable Manifolds and De Rham Cohomology, Instructor, Oxford-Stanford Program.
- Michaelmas 2013: Metric Spaces and Complex Analysis, Tutor, Oxford-Williams Program.
- Trinity 2013: Gaussian Measures and Stochastic Partial Differential Equations, Guest Instructor.
- Trinity 2013: Analysis and Linear Algebra, Tutor.
- Hilary 2013: Analysis and Linear Algebra, Teaching Assistant.
- Michaelmas 2011: Complex Analysis, Teaching Assistant.