

# Zhen Chen

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## EDUCATION

**Ph.D. graduate student, University of Rochester, United States    2018    Present**

Major: Experimental Psychology

Co-advised by: Ralf Haefner and Krishnan Padmanabhan

On-going project: Olfactory coding, neural network modeling, unsupervised spike sorting

**Ph.D., ,Nanjing University of Aeronautics and Astronautics, China    2013    2108**

Major: General and Fundamental Mechanics

Advised by: Xianbin Liu

Projects: Large deviation and rare events, random dynamical systems and chaos

**MS, Nanjing University of Aeronautics and Astronautics, China    2011    2013**

Major: General and Fundamental Mechanics

Advised by: Xianbin Liu

**BS, Nanjing University of Aeronautics and Astronautics, China    2007    2011**

Major: Engineering Mechanics

## AWARDS AND FELLOWSHIPS

Global Photo Contest at University of Rochester – December, 2018

NSF NRT: Graduate Training in Data-Enabled Research into Human Behavior and its Cognitive and Neural Mechanisms, August, 2018

Scholarship: China National Scholarship for Doctoral Students – October, 2016

Scholarship: China National Scholarship for Undergraduate Students – October, 2009

## TEACHING EXPERIENCE

Advanced Algebra, fall semester of 2015 – 2016 in Nanjing University of Aeronautics and Astronautics.

## PUBLICATIONS

**Zhen Chen**, Krishnan Padmanabhan. 2020 Top-Down Control of Inhibitory Granule Cells in the Main Olfactory Bulb Reshapes Neural Dynamics Giving Rise to a Diversity of Computations. *Frontiers in Computational Neuroscience* **14**: 59.

**Zhen Chen**, Jinjie Zhu, Xianbin Liu. 2019 Non-differentiability of Quasi-potential and Non-smooth Dynamics of Optimal Paths in the Stochastic Morris-Lecar Model: Type I and II Excitability. *Nonlinear Dynamics* **96** (4): 2293.

**Zhen Chen**, Jinjie Zhu, Xianbin Liu. 2017 Crossing the quasi-threshold manifold of a noise-driven excitable system. *Proceedings of The Royal Society A* **473**: 20170058.

**Zhen Chen**, Xianbin Liu. 2017 Subtle escaping modes and subset of patterns from a non-hyperbolic chaotic attractor. *Physical Review E* **95**: 012208.

**Zhen Chen**, Xianbin Liu. 2017 Noise induced transitions and topological study of a periodically driven system. *Communications in Nonlinear Science and Numerical Simulation* **48**: 454–461.

**Zhen Chen**, Xianbin Liu. 2017 Singularities of fluctuational paths for an over-damped two-well system driven by white noise. *Physica A* **469**: 206-215.

**Zhen Chen**, Yang Li, Xianbin Liu. 2016 Noise induced escape from a non-hyperbolic chaotic attractor of a periodically driven nonlinear oscillator. *Chaos* **26**: 935–992.

**Zhen Chen**, Xianbin Liu. 2016 Patterns and singular features of extreme fluctuational paths of a periodically driven system. *Physics Letters A* **380**: 1953-1958.

**Zhen Chen**, Xianbin Liu. 2015 Effect of bounded noise on chaotic motions of stochastically perturbed slowly varying oscillator. *Chaos, Solitons & Fractals* **76**: 72-81.

Jinjie Zhu, **Zhen Chen**, Xianbin Liu. 2018 Probability evolution method for exit location distribution. *Physics Letters A* **382** (11), 771-775

Jinjie Zhu, **Zhen Chen**, Xianbin Liu 2016 Effects of distance-dependent delay on small-world neuronal networks. *Physical Review E* **93**: 042417.

Chen Kong, **Zhen Chen**, Xianbin Liu. 2016 On the Stochastic Dynamical Behaviors of a Nonlinear Oscillator Under Combined Real Noise and Harmonic Excitations. *Journal of Computational and Nonlinear Dynamics* **12**: 031015.

## TALKS AND CONFERENCE

- Attendance: Thirty-second Conference on Neural Information Processing Systems, December, 2018, Montreal Convention Centre, Montreal, Canada.
- Attendance: Conference on Cognitive Computational Neuroscience, September, 2018, Philadelphia, Pennsylvania, USA.
- Invited Lecture: The 5th National Conference on Stochastic Dynamics of China, Weihai, China, October, 2017.
- Sectional Lecture: The 16th National Conference on Nonlinear Vibration & The 13th National Conference on Nonlinear Dynamics and Stability, Hangzhou, China, May, 2017.
- Invited Lecture: Conference on New Progress of Stochastic Dynamics and Control, Xi'an, China, September, 2016.
- Invited Lecture: The 5th National Conference on Stochastic Dynamics of China & The 10th National Conference on Theory and Applications of Random Vibration, Fuzhou, China, November, 2016.
- Sectional Lecture: The Chinese Conference of Theoretical and Applied Mechanics, Shanghai, China, August 2015.

- Attendance: The 4th National Conference on Stochastic Dynamics of China, Xi'an, China, April, 2015.
- Attendance: The 9th National Conference on Theory and Applications of Random Vibration & The 3rd National Conference on Stochastic Dynamics, Lanzhou, China, Oct. 9-11, 2014.