Xinyi Deng

Academic Position & Contact Information

Postdoctoral Research Scientist
Zuckerman Mind Brain Behavior Institute
Columbia University

E-mail: xd2188@columbia.edu
Jerome L. Greene Science Center L5-071
3227 Broadway, New York, NY 10027

Education & Training

Postdoctoral Training, Grossman Center for the Statistics of Mind **July 2016–present**
Columbia University, New York, NY
Joint affiliations with the group of Dr. Liam Paninski and Department of Statistics

Ph.D., Mathematics, specialization in Statistics **May 2016**
Boston University, Boston, MA
Thesis advisor: Dr. Uri Eden

B.S., Statistics, *magna cum laude* **May 2011**
American University, Washington, D.C.
Major advisor: Dr. Elizabeth Malloy

Research Interests

Point processes, state-space models, theory of neural coding and computation

Honors & Awards

Rising Stars in Biomedical (selected by the MIT IMPACT program), 2019
Chinese Government Award for Outstanding Students Abroad ($6,000), 2016
Organization for Computational Neuroscience Travel Award ($400), 2014
Hanna Miriam Sandler and Bella Sandler Award ($2,000), 2011
Mellon Fund Undergraduate Research Support ($1,500), 2010
Frederick Douglass Scholarship ($15,000 per year), 2007–2011

Publications

Preprints and Manuscripts Under Review

1. **Xinyi Deng**, Shizhe Chen, Marielena Sosa, Mattias Karlsson, Xue-Xin Wei, and Loren Frank. (under review) A variable clock underlies internally generated hippocampal sequences.
2. Hao Chen, Shizhe Chen, and **Xinyi Deng**. A universal nonparametric event detection framework for Neuropixels data. bioRxiv 650671; doi: 10.1101/650671.

Peer-Reviewed Journal Articles

1. **Xinyi Deng**, Daniel Liu, Mattias Karlsson, Loren Frank, and Uri Eden. (2016) Rapid classification of hippocampal replay content for real-time applications. *Journal of Neurophysiology, 116(5)*, 2221–2235.
2. **Xinyi Deng**, Daniel Liu, Kenneth Kay, Loren Frank, and Uri Eden. (2015) Clusterless decoding of position from multiunit activity using a marked point process filter. *Neural Computation, 27(7)*, 1438–1460.
3. **Xinyi Deng**, Emad Eskandar, and Uri Eden. (2013) A point process approach to identifying and tracking transitions in neural spiking dynamics in the subthalamic nucleus of Parkinson's patients. *Chaos, 23(4)*, 046102. (Invited

contribution to Focus issue: Rhythms and Dynamic Transitions in Neurological Disease.)

4. Natalia Prado-Oviedo, Elizabeth Malloy, **Xinyi Deng**, and Janine Brown. (2013) Hyperprolactinemia is not associated with hyperestrogenism in noncycling African elephants (*Loxodonta africana*). *General and Comparative Endocrinology, 189*, 7–14.

Peer-Reviewed Conference Proceedings

1. **Xinyi Deng**, Rose Faghih, Riccardo Barbieri, Angelique Paulk, Wael Asaad, Emery Brown, Darin Dougherty, Alik Widge, Emad Eskandar, and Uri Eden. (2015) Estimating a dynamic state to relate neural spiking activity to behavioral signals during cognitive tasks. *Proceedings of the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society* (pp. 7808–7813). Milan, Italy.

Patents and Patent Applications

1. Alik Widge, Emad Eskandar, Darin Dougherty, Uri Eden, **Xinyi Deng**, Ali Yousefi, and Angelique Paulk. System and methods for monitoring and improving cognitive flexibility. Application number US 15/740975. Published on July 12, 2018.

Invited Talks & Conference Activity

Invited Talks

2019 Invited Talk, Uri Eden's group, Boston University, Boston, MA
Seminar, Department of Statistics, Beijing University of Technology, Beijing, China
Seminar, School of Mathematics and Statistics, Wuhan University, Wuhan, China
2018 Invited Talk, Center for Computational Biology, Simons Foundation/Flatiron Institute, New York, NY
2016 Invited Talk, Gyorgy Buzsaki's lab, New York University, New York, NY
Neurostat Seminar, Grossman Center for the Statistics of Mind, Columbia University, New York, NY
2015 Statistical Neuroscience Lunch Seminar, Brown Institute for Brain Science, Brown University, Providence, RI
Invited Session, 37$^{\text{th}}$ Annual International Conference of the IEEE Engineering In Medicine and Biology Society, Milan, Italy
Young Investigator Lecture, 7$^{\text{th}}$ International Workshop on Statistical Analysis of Neuronal Data, Pittsburgh, PA
Minisymposium, Society for Industrial and Applied Mathematics Conference on Applications of Dynamical Systems, Snowbird, UT
2014 Seminar, Department of Mathematics and Statistics, American University, Washington, D.C.

Oral Presentations

2014 Joint Statistical Meetings, Boston, MA
New England Statistics Symposium, Harvard School of Public Health, Boston, MA

Poster Presentations

2019 Society for Neuroscience Annual Meeting, Chicago, IL
International Workshop on Statistical Analysis of Neuronal Data, Pittsburgh, PA
Computational and Systems Neuroscience Annual Meeting, Lisbon, Portugal
2016 Society for Neuroscience Annual Meeting, San Diego, CA
2015 Society for Neuroscience Annual Meeting, Chicago, IL
Computational Neuroscience Annual Meeting, Prague, Czech Republic
2014 Society for Neuroscience Annual Meeting, Washington, D.C.
Computational Neuroscience Annual Meeting, Quebec City, Canada
2013 Rhythmic Dynamics and Cognition Conference, MIT, Cambridge, MA

Workshop and Short Course Attendance

2018 Cellular, Computational and Cognitive Neuroscience Summer Program, Princeton University, Princeton, NJ

2016 Statistical Challenges in Modern Astronomy VI, Pittsburgh, PA

Professional Service

Reviewer, IEEE Engineering in Medicine and Biology Society

Co-Organizer, Seminar Series, Center for Theoretical Neuroscience, Columbia University, 2018–2019

Teaching Experience

Instructor, Boston University **July–August, 2012**

MA113 Elementary Statistics (summer term)

Teaching Assistant, Boston University **August 2011–December 2013**