

# Xinyi Deng

## ACADEMIC POSITION & CONTACT INFORMATION

**Assistant Professor**, Department of Data Science  
Beijing University of Technology

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100 Ping Le Yuan, Chaoyang, Beijing, China 100124

## INSTITUTIONAL APPOINTMENTS

**Assistant Professor**, Department of Data Science  
Beijing University of Technology, Beijing, China

**November 2019–present**

## EDUCATION & TRAINING

**Postdoctoral Training**, Grossman Center for the Statistics of Mind  
Columbia University, New York, NY

**July 2016–November 2019**

Joint affiliations with the research group of Dr. Liam Paninski and Department of Statistics

**Ph.D., Mathematics**, specialization in Statistics  
Boston University, Boston, MA

**May 2016**

Thesis advisor: Dr. Uri Eden

**B.S., Statistics**, *magna cum laude*  
American University, Washington, D.C.

**May 2011**

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, 2016

Organization for Computational Neuroscience Travel Award, 2014

Hanna Miriam Sandler and Bella Sandler Award, 2011

Mellon Fund Undergraduate Research Support, 2010

Frederick Douglass Scholarship, 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. bioRxiv: 2020.04.10.035980.
2. Hao Chen, Shizhe Chen, and **Xinyi Deng**. A universal nonparametric event detection framework for Neuropixels data. bioRxiv: 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 37<sup>th</sup> 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.

### RESEARCH FUNDING

- 2021-2023 National Natural Science Foundation of China (NSFC) for Young Investigators Grant 12001024 (CNY 240,000)  
**Principal Investigator**; Statistical Analysis of Neural Spiking Data
- 2020 Beijing University of Technology New Faculty Research Startup Fund (CNY 50,000)

### INVITED TALKS & CONFERENCE ACTIVITY

#### Invited Talks

- 2020 Invited talk, Institute of Neuroscience/Center for Excellence in Brain Science and Intelligence Technology, Chinese Academy of Sciences, Shanghai, China  
 Invited talk (virtual), China Automation Congress workshop “Computational Neuroscience and Intelligent Computing Applications”, Shanghai, China
- 2019 Invited talk, Eden 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, Buzsaki 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<sup>th</sup> Annual International Conference of the IEEE Engineering In Medicine and Biology Society, Milan, Italy  
 Young Investigator Lecture, 7<sup>th</sup> 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:** Neural Computation; IEEE Engineering in Medicine and Biology Society  
**Mentor,** NeuroMatch Academy, 2020  
**Co-Organizer,** Seminar Series, Center for Theoretical Neuroscience, Columbia University, 2018–2019

TEACHING EXPERIENCE

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| <b>Instructor,</b> Beijing University of Technology                  | <b>September, 2020–present</b>   |
| Probability Theory and Mathematical Statistics, Time Series Analysis |                                  |
| <b>Instructor,</b> Boston University                                 | <b>July–August, 2012</b>         |
| Elementary Statistics (summer term)                                  |                                  |
| <b>Teaching Assistant,</b> Boston University                         | <b>August 2011–December 2013</b> |