Qinglong Gu

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Position

2018-Now **Postdoctoral Associate**
Yale University, Department of Psychiatry, Murray Lab

Education

2013-2018 **Ph.D. in Mathematics**

2011-2013 **M.S. in Mathematics**,
Shanghai Jiao Tong University, China
Advisors: **Prof. David Cai and Prof. Douglas Zhou**
Dissertation: "Balanced state in neuronal networks".

2007-2011 **B.S. in Mathematics**
Shanghai Jiao Tong University, China

Awards

2018-2020 **Swartz Fellowship**, Yale University

2013 **National Scholarship**, Ministry of Education, China
The highest honorific scholarship awarded by the Chinese government for excellence in research

2011-2013 **Excellent Academic Scholarship(first-class)**, Shanghai Jiao Tong University
The scholarship awarded by SJTU for top 5% *student in each department*

Publications

2021 ***Qinglong Gu***, Norman H. Lam, Ralf D. Wimmer, Michael M. Halassa, John D. Murray, **Computational circuit mechanisms underlying thalamic control of attention** (*In Review*). *bioRxiv*

2019 ***Qinglong Gu***, Songting Li, Douglas Zhou and David Cai, **Emergence of spatially periodic diffusive waves in small-world neuronal networks**. *Physical Review E*

2019 ***Qinglong Gu***, Songting Li, Wei Dai, Douglas Zhou and David Cai, **Balanced Active Core in Heterogeneous Neuronal Networks**. *Frontiers in Computational Neuroscience*

2018 ***Qinglong Gu***, Zhongqi Tian, Douglas Zhou and David Cai, **The Dynamics of Balanced Spiking Neuronal Networks Under Poisson Drive Is Not Chaotic**. *Frontiers in Computational Neuroscience*

Work in Preparing

*=equal contributions

2021 ***Qinglong Gu****, Norman H. Lam*, John D. Murray. *A Dendritic-Inhibition Circuit Model for Working Memory*.

2020 ***Qinglong Gu***, John D. Murray. *A Dynamical Systems Perspective on Thalamic Circuit*. Book chapter in press.

2020 Daming Li*, ***Qinglong Gu***, John D. Murray. *Modeling the causal effect of locus coeruleus neuromodulation on brain dynamics*.

Ongoing work presented at conferences

06/2021 *Computational circuit mechanisms underlying thalamic control of attention* (poster), CNS, online, Jun-Jul, 2021

02/2020 *Mechanisms of top-down attentional control in thalamic reticular circuits* (poster), Cosyne, USA, Feb-Mar, 2020

10/2019 *Mechanisms of top-down attentional control in thalamic reticular circuits and effects of inhibitory dysfunction* (poster), SfN, Snowbird, Chicago, USA, Oct, 2019

05/2017 *Emergence of a balanced core through dynamical computation in inhomogeneous neuronal networks*, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, USA, May, 2017

11/2016 *Emergence of a balanced core through dynamical computation in inhomogeneous neuronal networks*, the 12th conference on Computational Sciences and Engineering, Shanghai, China, Nov, 2016

08/2016 *Balanced state in scale-free neuronal networks*, SIAM Conference on Nonlinear Waves and Coherent Structures, Philadelphia, USA, Aug, 2016

05/2016 *Balanced state in scale-free neuronal networks*, Mathematical Sciences Department, Rensselaer Polytechnic Institute, Mar, 2016

11/2015 *Balanced state in scale-free neuronal networks*, the 11th conference on Computational Sciences and Engineering, Shanghai, China, Nov, 2015

Research Interests

Properties of balanced neuronal networks, Dynamical systems,
Thalamic circuits, Large-scale modeling, Computational psychiatry

Academic Experience

2019 Post graduate, Yale University, USA, Sep, 2019

2017 Student, Computational and Cognitive Neuroscience Summer School, *Cold Spring Harbor Asia*. July, 2017

2016-2017 Visiting Researcher, Courant Institute at New York University, USA, Jan–May, 2016; Jan–May, 2017

2014-2016 Visiting Researcher, New York University Abu Dhabi, UAE, Feb–Mar, 2014; Feb–Mar & Aug–Sep, 2015; Aug–Sep 2016

Teaching

2020 Neuromatch Academy, online
Teaching assistant. Developed tutorials of “Real Neurons” and “Dynamic Networks”.

2019 Computational and Cognitive Neuroscience Summer School, Suzhou, China
Teaching assistant. Developed tutorials of “Decision Making & Attractor Model” and “Large scale brain model". Advised students *Wen Jin*, *Dian Lu* and *Xingjian Chu* on their projects.

2015 Calculus, Shanghai Jiao Tong University, Shanghai, China
Teaching assistant

2014 Numerical Methods, Shanghai Jiao Tong University, Shanghai, China
Teaching assistant

2013 Probability and Statistics , Shanghai Jiao Tong University, Shanghai, China
Teaching assistant

Research Mentorship

2019-now Daming Li, graduate student in the group of Prof. John Murray.

2019 Computational and Cognitive Neuroscience Summer School project supervision:

Wen Jin, Shanghai Jiao Tong University, “Robustness of model fitting for large-scale brain dynamics”

Dian Lu, University of Cambridge, “Effect of Propofol on Large-scale model”

Xingjian Chu, University of Science and Technology of China, "What’s the Mechanism underlying Initial Condition Dependent RNN"

2015-2016 Zhongqi Tian, graduate student in the group of Prof. David Cai.

Professional Affiliations

(**Cosyne**) Member of Computational and Systems Neuroscience

(***SfN***) Member of Society for Neuroscience

(**SIAM**) Member of Society for Industrial and Applied Mathematic

(**CNS**) Member of Chinese Neuroscience Society