

# Yuxiu Shao

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## Education

- 2014–2020 Ph.D. in Computational Neuroscience, School of Life Sciences, Peking University, P.R. China  
Thesis Title: Multi-scale Modeling and Analysis of Spatiotemporal Dynamics in Mammalian Primary Visual Cortex  
Supervisor: Louis Tao  
Nomination for the Outstanding Doctoral Graduate Zhang Jing-yue Award
- 2010–2014 B.Eng. in Mechanical & Electronic Engineering, School of Mechanical Engineering and Automation, Beijing University of Aeronautics and Astronautics, Beijing, P.R. China  
Obtained with Beijing Outstanding Graduates

## Academic Appointments

<sup>†</sup> *Indicates expected*

- 2020–2023 <sup>†</sup> Post-doc Researcher (Supervisor: Srdjan Ostojic)  
Group for Neural Theory  
Laboratoire de Neurosciences Cognitives & Computationnelles  
Département d'Etudes Cognitives  
École Normale Supérieure, Paris, France

## Fellowships

- 2021–2022 [IN-BIC \(International Network for Bio-Inspired Computing\) Fellow](#), program in collaboration with UW Computational Neuroscience Center  
Supervisor: Srdjan Ostojic (ENS); Collaborating supervisor: Eric Shea-Brow (UW)

## Selected awards

- 2016–2017 Award for Scientific Research, Peking University  
2014–2015 Award for Academic Excellents, Peking University  
2010-2013 National Scholarship, Ministry of Education, China

## Publications

### Journal articles

- [1] **Shao, Y.** & Ostojic, S. (2023). Relating local connectivity and global dynamics in recurrent excitatory-inhibitory networks. *PLOS Computational Biology*, 19(1), e1010855. DOI: [10.1371/journal.pcbi.1010855](https://doi.org/10.1371/journal.pcbi.1010855)
- [2] Molano-Mazón, M., **Shao, Y.**, Duque, D., Yang, G. R., Ostojic, S. & de la Rocha, J. (2023). Recurrent networks endowed with structural priors explain suboptimal animal behavior. *Current Biology*. DOI: [10.1016/j.cub.2022.12.044](https://doi.org/10.1016/j.cub.2022.12.044)
- [3] **Shao, Y.**, Zhang, J. & Tao, L. (2020). Dimensional reduction of emergent spatiotemporal cortical dynamics via a maximum entropy moment closure. *PLoS computational biology*, 16(6), e1007265. DOI: [10.1371/journal.pcbi.1007265](https://doi.org/10.1371/journal.pcbi.1007265)
- [4] **Shao, Y.\***, Wang, B.\*, Sornborger, A. T. & Tao, L. (2019). A mechanism for synaptic copy between neural circuits. *Neural Computation*, 31(10), 1964-1984. DOI: [10.1162/neco\\_a\\_01221](https://doi.org/10.1162/neco_a_01221)
- \* joint first-authorship
- [5] Zhang, J., **Shao, Y.**, Rangan, A. V. & Tao, L. (2019). A coarse-graining framework for spiking neuronal networks: from strongly-coupled conductance-based integrate-and-fire neurons to augmented systems of ODEs. *Journal of computational neuroscience*, 46, 211-232. DOI: [10.1007/s10827-019-00712-w](https://doi.org/10.1007/s10827-019-00712-w)

### Conference articles

- [1] **Shao, Y.**, Sornborger, A. T. & Tao, L. (2016, November). A pulse-gated, predictive neural circuit. In 2016 50th Asilomar Conference on Signals, Systems and Computers (pp. 1051-1055). IEEE. DOI: [10.1109/ACSSC.2016.7869530](https://doi.org/10.1109/ACSSC.2016.7869530)

## Selected posters

- Shao, Y.**, Molano-Mazon, M., Hermoso-Mendizabal, A., Bektic, L., de la Rocha, J. & Ostojic, S.(2023). Neural network dynamics underlying context-dependent perceptual decision making. *Cosyne*, Montreal, Canada.
- Shao, Y.** & Ostojic, S.(2022). Relating local connectivity and global dynamics in excitatory-inhibitory networks. *Cosyne*, Lisbon, Portugal.
- Shao, Y.** & Tao, L.(2019). A coarse-graining framework for spiking neuronal networks: from local, low-order moments to large-scale spatiotemporal activities. *CNS*, Barcelona, Spain.

**Shao, Y.,**Guan, S., Ju, N., Yu, C., Tang, S. & Tao, L.(2017). Organization of orientation and spatial frequency preferences in V1: Two-photon imaging of awake monkey. *sfN*, Washington, D.C, USA,

## Invited talks

**2nd Symposium on Neural Computation and Beyond** (11/2019), Suzhou, China

**CQB annual international conference “Quantitative Biology: Neuroscience and Artificial Intelligence Where Do We Meet”** (07/2018), Beijing, China

## Teaching Assistant

2021	CCN Summer School (remote)	Suzhou, China
2020-2022	CNeuro	Beijing, China/Basel Switzerland
2020	Neuromatch Academy (Leading TA)	Asia time-slot
2015–2016	Mathematical Modeling in the Life Sciences	MOOC on <a href="http://www.edx.org">www.edx.org</a>
2014–2016	Mathematical Modeling in the Life Sciences	Peking University

## Professional Activities

- Workshop Organizer at Bernstein Conference 2021, “The geometry of neural activity: low-dimensional dynamics and high-dimensional representations”
- Reviewer, Cognitive neurodynamics.

## References

Available on request.