

# Bin Li

^ Latest Update: 2025/05/24

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🌐 <https://libinutokyo.github.io>



## Education

- 2023 – now     📖 **Ph.D. Candidate, Graduate School of Frontier Science, the University of Tokyo**
- 2021 – 2023     📖 **M.Eng., Graduate School of Engineering, the University of Tokyo**  
Thesis title: *Evaluation of Task-Oriented Learning Ability of Spiking Neural Networks under Excitation-Inhibition Interaction.*
- 2017 – 2021     📖 **B.S., Department of Physics, Jilin University**  
Thesis title: *Structural and Optical Properties of  $Cs_2AgIn_{0.9}Bi_{0.1}Cl_6$  Nanocrystals Under High Pressure.*

## Research Publications

### Journal Articles

- 1     **B. Li**, T. Zheng, R. Otsuki, M. Sugino, K. Shimba, and K. Kotani, “Neural oscillation in low-rank snns: Bridging network dynamics and cognitive function,” *Frontiers in Computational Neuroscience*, 2025, Accepted, to appear.
- 2     T. Zheng, **B. Li**, Y. Jimbo, K. Shimba, and K. Kotani, “Noise enhances excitability of a neuronal population with heterogeneous excitatory neurons,” *IEEJ Transactions on Electrical and Electronic Engineering*, Jul. 16, 2024. 🔗 DOI: 10.1002/tee.24166.
- 3     **B. Li**, R. Iguchi, H. Noyama, T. Zheng, K. Kotani, and Y. Jimbo, “The effects of biological constraints on the performance of spiking neural networks,” *IEEJ Transactions on Electronics, Information and Systems*, vol. 143, no. 7, pp. 634–640, 2023. 🔗 DOI: 10.1541/ieejieiss.143.634.
- 4     H. Noyama, Y. Yoshikai, **L. Bin**, R. Iguchi, K. Kotani, and Y. Jimbo, “Analysis of a neural population model for interaction of LFP and individual action potential,” *IEEJ Transactions on Electrical and Electronic Engineering*, vol. 18, no. 4, pp. 597–604, 2023. 🔗 DOI: 10.1002/tee.23764.

### Conference Proceedings

- 1     **B. Li**, T. Zheng, R. Otsuki, *et al.*, “A study with voltage dependent theta neuron model and low-rank connectivity in go-nogo tasks toward biologically plausible rnns,” in *The 3rd RIKEN CBS Co-Creation International Conference*, Wako, Saitama, Japan, Jan. 16, 2025.
- 2     **B. Li**, T. Zheng, K. Kotani, K. Shimba, and Y. Jimbo, “Functional spiking recurrent neural networks under biological constraints of neurotransmitter receptors,” in *EMBC 2024*, Orlando, USA, Jul. 18, 2024.





## Skills

- Languages     📖 English(Fluent, TOFEL 92), Mandarin Chinese (Native), Japanese (Fluent, N1).
- Coding         📖 Python, Matlab,  $\LaTeX$ , Pytorch

## Miscellaneous Experience

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### Awards and Achievements

- 2024          **Research Fellowship for Young Scientist**, Japan Society for the Promotion of Science.
-      **2023 Paper Encouragement Award from the Journal of the Electronics, Information and Systems**, The Institute of Electrical Engineers of Japan (IEEJ).
-      **Best Presentation Award**, The Japan Society for Precision Engineering (JSPE).
- 2023          **UTokyo Todai Fellowship**, the University of Tokyo.

### Summer School Experiences

- 2024          **Computational and Cognitive Neuroscience Summer School**, Cold Spring Harbor Asia.