Binxu Wang

Neuroscience Ph.D. Candidate

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EDUCATION

BSc in Physics, **Peking University**, Beijing, China Sep 2013- July 2018
Major GPA: 3.78/4.0 (top 12% in Department of Physics)

Ph.D. candidate in Neuroscience, **Washington University in St Louis,** US Sep 2018- Sep 2021
GPA: 3.87/4.0

Brains, Minds & Machines Summer Course, Woods Hole. Aug 2021

Visiting Grad Student† in Neurobiology, **Harvard Medical School,** US Sep 2021- Now
Moved to HMS with thesis advisor Carlos R. Ponce

PUBLICATION

Peer Reviewed

Wang, B., Ponce, C. R., (2021), A Geometric Analysis of Deep Generative Image Models and Its Applications. *International Conference on Learning Representations*, arXiv: 2101.06006.

Shao, Y†., **Wang, B.†,** Sornborger, A. T., Tao, L., (2019), A mechanism for synaptic copy between neural circuits. *Neural Computation*, 31(10), doi: 10.1162/neco_a_01221

Xiao, Z.†, **Wang, B.†,** Sornborger, A.T., Tao, L., (2018) Mutual Information and Information Gating in Synfire Chains, *Entropy,* 20(2), 102, doi: 10.3390/e20020102

Conference Poster

Wang, B., Ponce, C. R., (2021), Climb High and Gaze Far: mapping tuning landscapes of the ventral stream via image optimization and manipulation, poster at *Bernstein Conference 2021*, doi: 10.12751/nncn.bc2021.p206

Shao, Y., **Wang, B.**, Andrew, T., Tao, Louis, (2018), A mechanism for synaptic copy between neural circuits, poster at *Society for Neuroscience*, doi: 10.1101/351114

†: *Equal contribution*

FELLOWSHIP AND AWARDS

2021 Fujitsu Laboratories Fellowship for Brains, Minds and Machines Summer Course.
2019-21 Cognitive, Computational, and Systems Neuroscience Pathway Traineeship in Washington University
2018 Excellent Graduate in the City (Beijing) (*Highest Honor for Graduates in Peking University*)
2016-17 Peking University Merit Student Award
2014-15 Peking University Academic Excellence Award
2015-17 Peking University Physics Department WeiMingXueZi Scholarship
2014-16 Peking University Guanghua Scholarship
(*Both scholarships are merit-based, awarded for academic excellence*)

INVITED TALK

2021 AI Time organization (virtual) https://www.youtube.com/watch?v=IksDG84seng

SERVICE

2020 Invited for journal article review for Cognitive Neural Dynamics; Assisted review for PLOS Computational Biology

TEACHING

2020 Teaching assistant for BIO5648 Coding and Statistical Thinking in the Neurosciences, in Washington University
Gave a lecture on the application of bootstrapping methods in neuroscience.

2021 Teaching assistant for NEURO120 Introduction to Computational Neuroscience, in Harvard University
Held a one-hour review section each week.

SKILLS

Computational Skills

- Adept in Python, Matlab for data analysis, statistical learning, deep learning tasks. Fluent in Julia, R for image processing, statistical analysis, and model fitting tasks.
- Have used PyTorch, TensorFlow, and Keras framework to build and train models for Electron Microscopy 3D Image Segmentation, 2D tissue classification, to model neural responses in visual cortex for images, to train conditional GAN.
- Understand basic usage of Linux system and HPC cluster parallel computing.

Coursework

- **Mathematics**: Methods of Mathematical Physics (Complex function and PDE), Mathematical Statistics, Nonlinear Dynamics for Physicists, Topology, Differential Geometry, Nonlinear Dynamic System.
- **Computation**: Optimization Algorithms for Big Data Analysis, Deep Learning: Algorithm and Application, Computer Vision, Advances in Computer Vision, Introduction to Artificial Intelligence.

Experimental Skills

- Light-sheet volume imaging for transparent samples.
- *In vivo* electrode array recording on awake monkey.
- Monkey behavioral task design by MonkeyLogic.
- zTree human behavior task design.