Xiaochen Wang

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EDUCATION

2025 - present	Ph.D student at **Carnegie Mellon University**
2020 - 2024	B.S. in Physics at **Jilin University**, China
	Supervisor: Prof. Jin Wang (State University of New York, Stony Brook)

WORK EXPERIENCE

2024.7 - 2025.7:	Research Assistant at CIAC, **Chinese Academy of Sciences**, China
2023.7 - 2023.10:	Research Assistant at **Simon Fraser University**, Canada

PUBLICATIONS

Wang, Xiaochen, Wu, Yuxuan, Zhang, Feng, Wang, Jin (2024). *Energy Consumption Optimization, Response Time Differences and Indicators in Cortical Working Memory Revealed by Nonequilibrium.* arXiv: `2411.17206 [q-bio.NC]`.

Wang, Xiaochen, Wu, Yuxuan, Xu, Liufang, Wang, Jin (2023). "Global dynamics, thermodynamics and non-equilibrium origin of bifurcations for single neuron dynamics". In: *The Journal of Chemical Physics* 159.15, p. 154105. ISSN: 0021-9606. DOI: `10.1063/5.0169296`.

PROJECTS

Learning probability evolution fields from high-dimensional time series: To uncover the underlying driving field of time series data, we trained deep networks using constraints adapted to the Hamilton-Jacobian method to find the critical subspace and evolution field functions, bridging high-dimensional experimental data and nonequilibrium statistical mechanics.(2024-2025)*

Exploring the Brain with Nonequilibrium Statistical Physics: To uncover the quantitative rules underlying brain network dynamics and provide a physical picture of how such complex systems operate efficiently, we apply methods from nonequilibrium statistical mechanics through modeling across levels from single neurons to multiple cortical areas, providing predictive indicators and quantitative relations.(2021-2023)*

Cerebra-Cerebellar Dynamics in Human Brain Health Using MEG Methods: My work focused on using machine learning to analyze MEG data, quantifying the activity dynamics between the cerebellum and frontal cortex during specific behavioral paradigms. (2023)**

*Supervised by Prof. Jin Wang (State University of New York, Stony Brook)
**Supervised by Prof. Teresa Chuang (Simon Fraser University, Canada)

OTHERS

Some Skills	Python, Matlab, Claude, Chatgpt etc.
Some Awards	President's Scholarship, Jilin University, 2024.
	Dean's Scholarship, College of Physics, Jilin University, 2024.
	First Prize of the Research Practice Scholarship, Jilin University, 2024.
	Outstanding Student Leader, College of Physics, Jilin University, 2021 2024.
	Provincial First Prize in the 36th Chinese Physics Olympiad (CPhO), 2019.