Jiaqi Ding

919-593-7848 | jiaqid@cs.unc.edu | Google Scholar | https://github.com/jq-ding Jiaqi Ding

EDUCATION

The University of North Carolina at Chapel Hill — **North Carolina, United States**
PhD Student in Computer Science, Advisor – Prof. Guorong Wu — *Aug. 2022 – Now*
Research focus: AI for Computational Neuroscience

Tianjin University — **Tianjin, China**
M.S. in Computer Technology, Advisor - Prof. Fei Guo and Prof. Jijun Tang — *Sep.2019 – Jan. 2022*
Research focus:Medical Image Analysis

Shandong University — **Shandong, China**
B.S. in Digital Media Technology — *Sep.2014 - Jun. 2018*

RESEARCH INTEREST

My work is at the intersection of computational neuroscience and machine learning. I build neuro-inspired, interpretable models to analyze brain dynamics from fMRI and related modalities, aiming to solve concrete neuroscience problems with precision and efficiency. In parallel, I draw principles from neural systems to design ML models that are robust, data-efficient, and scientifically meaningful.

RESEARCH EXPERIENCE

The University of North Carolina at Chapel Hill - *Research Assistant* — *Aug. 2022 – Now*

- **Brain-inspired models for graphs and neuroimages**. Developed oscillatory synchronization models to characterize neural oscillations and inspire brain-informed graph intelligence. (Selected Pubs: [1], [2], [4])
- **Geometric modeling of brain networks**. Built and benchmarked geometric models on connectome/fMRI data to capture structure–function coupling and support disease/cognition prediction. (Selected Pubs: [3], [6], [7], [9], [10])
- **Robust, replicable machine learning for neuroimaging**. A framework to improve cross-site and cross-cohort replicability of functional neuroimaging models on multi-site fMRI. (Selected Pub: [5],[8])
- **MRI processing workflow**. Developed Docker-based pipelines for structural and functional MRI preprocessing to support large-scale, reproducible studies. (image)

Chinese Academy of Sciences - *Guest Student* — *Sep. 2021 – Jun. 2022*

- Participated in a national autism diagnosis project (led by Prof. Yi Pan), analyzing Hi-C and fMRI data from autistic patients and integrating multi-modal biomedical signals into machine learning models.

Tianjin University – *Research Assistant* — *Sep. 2019 – Sep. 2021*

- **Retinal Vessel Segmentation.** [paper1][code1] [paper2][code2]
- **Protein subcellular localization**. [paper] [code]
- **Dermoscopic image classification.** [paper][code]
- **Brain disease diagnosis based on fMRI.** [paper]

SELECTED PUBLICATION (FULL LIST)

[1] Explore brain-inspired machine intelligence for connecting dots on graphs through holographic blueprint of oscillatory synchronization
Tingting Dan*, **Jiaqi Ding***, Guorong Wu, **Nature Communications 2025** [link]

[2] SyncBrain: Exploring Brain Functional Dynamics Through Neural Oscillatory Synchronization
Jiaqi Ding, Tingting Dan, Zhixuan Zhou, Guorong Wu, **AAAI 2026 (oral)** [link]

[3] BrainMAP: Learning Multiple Activation Pathways in Brain Networks
Song Wang, Zhenyu Lei, Zhen Tan, **Jiaqi Ding**, et.al. **AAAI 2025 (oral)** [link]

[4] Let Brain Rhythm Shape Machine Intelligence for Connecting Dots on Graphs
Jiaqi Ding, Tingting Dan, Zhixuan Zhou, Guorong Wu, **NeurIPS 2025** [link]

[5] Scanning the Horizon of Replicability in Neuroscience: A Recipe of Developing Replicable Deep Models for Functional Neuroimages
Jiaqi Ding, Tingting Dan, Ziquan Wei, Paul J. Laurienti, Guorong Wu, **IEEE TBME 2025** [link]

[6] GeoDynamics: A Geometric State-Space Neural Network for Understanding Brain Dynamics on Riemannian Manifolds
Tingting Dan, **Jiaqi Ding**, Guorong Wu, **NeurIPS 2025** [link]

[7] NeuroPath: A Neural Pathway Transformer for Joining the Dots of Human Connectomes
Ziquan Wei, Tingting Dan, **Jiaqi Ding**, Guorong Wu, **NeurIPS 2024** [link]

[8] A Wasserstein Recipe for Replicable Machine Learning on Functional Neuroimages
Jiaqi Ding, Tingting Dan, Ziquan Wei, Paul Laurienti, Guorong Wu, **MICCAI 2024** [link]

[9] Representing functional connectivity with structural detour: A new perspective to decipher structure-function coupling mechanism
Ziquan Wei, Tingting Dan, **Jiaqi Ding**, Paul Laurienti, Guorong Wu, **MICCAI 2024** [link]

[10] Re-think and re-design graph neural networks in spaces of continuous graph diffusion functionals
Tingting Dan, **Jiaqi Ding**, Ziquan Wei, Shahar Kovalsky, Minjeong Kim, Won Hwa Kim, Guorong Wu, **NeurIPS 2023** [link]

HONOR

AAAI 2026 Student Scholarship

SERVICES

Conference Reviewer: ICML, ICLR, NeuripIPS, AAAI, MICCAI
Workshop Program Commitee: T4V@CVPR 2023,2024

SKILLS

Programming Languages: Python, C++
Softwares and Platforms: Linux, Pytorch, Matlab, OpenCV, Latex