

Education

Universität Tübingen

M.Sc in Neural Information Processing

2021 – present

Tübingen, Germany

- Courses: Neural Dynamics, Introduction of Computational Neuroscience, Birdsong as a Model in Cognitive and Systems Neuroscience, Machine Learning, Signal Processing, Neural coding, Neurophysiology, Neural Experimental Technique, Sensory System, Functional Organization of Vertebrate CNS, Cognitive Map

Beijing Normal University

M.Sc in Psychology

2018 – 2021

Beijing, China

- Courses: Computational Neuroscience (neuromatch academy 2021), Nerve Interface, Brain Imaging Data Modeling

Sun Yat-Sen University

B.Sc in Information Management and Information System

2014 – 2018

Guangdong, China

- Courses: SQL, Data Visualization, Linear Algebra, Advanced Mathematics, Discrete Mathematics, Statistics for Management

Research Experience

Institute for Neurobiology, Dr. Andrea Burgalossi

Morphology and activity of head direction cells

2023 – present

Tübingen, Germany

Department of Computer Science, Dr. Anna Levina (Martius)

Dissociated aperiodic and periodic neural dynamics during attention.

2022 – 2023

Tübingen, Germany

- Dissociated aperiodic and periodic neural dynamics using LFP data from V1 and V4 in spatial visual attention task.

Cluster of Excellence "Machine Learning", Dr. Charley Wu

rate-distortion theory as a model of human representation learning

2022 – present

Tübingen, Germany

- Designed an online compositional bandit experiment for representation learning.
- Designed an online experiment for value-based memory.

Max Planck Institute For Ornithology, Dr. Daniela Vallentin

Juvenile song detection

2022

Seewiesen, Germany

- Designed juvenile song detection pipeline using DAS.
- Designed UMAP interactive tool to check annotation efficiently.

Institute for Neurobiology, Dr. Lena Veit

UMAP labeling tool

2021 – 2022

Tübingen, Germany

- Developed a Web-based tool for visualizing and relabeling syllables ([Github link](#)).

Pitch learning model project

- Disentangled factors in context-based pitch learning using regression models.

State Key Laboratory of Cognitive Neuroscience and Learning, Dr. Gaolang Gong

Corpus Callosum Topography Based on dMRI ([ccmapping.org](#))

2018 – 2021

Beijing, China

- Developed a track-generating and filtering pipeline using Mrtrix3. Obtained fibers passing through the corpus callosum and connecting left and right hemispheres.
- Generated individual corpus callosum topography based on HCP S1200 Database, and established group-averaged validated topographic maps with different weighting methods.
- Designed a Web-based tool to provide full and interactive access to the topographic result using Three.js, WebGL, and Node.js.

Asymmetries of planum temporale predict lateralization of auditory-language processing

- Defined planum temporale manually and draw masks of relative ROIs.

School of Information Management, Dr. Daifeng Li

Effects of Different Machine Learning Methods on ADHD classification

2018

Guangdong, China

- Classified ADHD and control group using SVM, Logistic, CNN.

Papers

- Yang, Liyuan, Chenxi Zhao, **Xiong, Yirong**, Suyu Zhong, Di Wu, Shaoling Peng, Michel Thiebaut de Schotten, and Gaolang Gong. “Callosal fiber length scales with brain size according to functional lateralization, evolution, and development”. In: *Journal of Neuroscience* 42.17 (2022), pp. 3599–3610.
- Xiong, Yirong**, Nir Moneta, Bányaí Mihály, and Charley Wu. “Selective memory for reward-relevant features is modulated by expertise during reward learning”. Under review: *Conference on Cognitive Computational Neuroscience*. (2023).
- Xiong, Yirong**, Liyuan Yang, Changtong Wang, Chenxi Zhao, Junhao Luo, Di Wu, Yiping Ouyang, Michel Thiebaut de Schotten, and Gaolang Gong. “Population-based cortical mapping of callosal connections in the human brain”. Under review: *NeuroImage*, <https://doi.org/10.21203/rs.3.rs-2210117/v1>. (2022).

Conferences

- Xiong, Yirong**. “Population-based cortical mapping of callosal connections in the human brain”. In: NeNa Conference (Neurowissenschaftliche Nachwuchskonferenz). 2022.
- Xiong, Yirong**, Liyuan Yang, Chenxi Zhao, Junhao Luo, Di Wu, and Gaolang Gong. “A population-based online interactive atlas of human brain callosal connectivity.” In: OHBM Annual Meeting. 2021.

Honors & Awards

IMPRS stipends (monthly funding for IMPRS 5-Year MSc/PhD program) – 2021
The First Prize Academic Scholarship of Beijing Normal University – 2020 & 2019
Scientific Research Contributions Scholarship of Beijing Normal University – 2019
Freshman Scholarship of Beijing Normal University – 2018

Skills

Programming Languages: Python, JavaScript, SQL, HTML/CSS, MATLAB
Brain Imaging Tools: FreeSurfer, FSL
Languages: Mandarin(native), English(fluent)

Hobbies

Electronic keyboard, marathon, birdwatching.