

## 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

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- 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**, 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

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- 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

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**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

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

## Hobbies

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Electronic keyboard, marathon, birdwatching.