**Ruoxi Sun**

 (+86)136-0802-8680  [srx20@m](mailto:naruto@hinata.com)ails.tsinghua.edu.cn

# EDUCATION

## Tsinghua University (THU)

Minor: Statistics; Major: English

# RESEARCH EXPERIENCE

*September 2020-June 2024*

GPA: 3.94 / 4

## Dr. Shantanu Jadhav’s Lab, Brandeis University

*CompNeuro, hippocampus and prefrontal-cortex communication (Matlab)*

* Implemented Joint Peri-Event Canonical Correlation Analysis (JPECC) to analyze behavioral data collected from rats W-maze task, in order to study the communication subspace regarding theta, delta and ripples

*July 2023-Present*

## Dr. Sen Song’s Lab, Tsinghua University

*CompNeuro and Neuroimaging (Python)*

* Based on dynamic properties to build a whole-brain level model that could generate critical point alpha and gamma oscillation as observed in resting-state ECog data, where connectivity strength within local and long-range circuits are mainly used to generate hierarchical structure
* Applied causal inference with large-scale EEG data to learn the effective connectivity map of EEG channels, where mathematical methods like Phase Transfer Entropy (PTE), Granger Causality (GC) and Mutual Information (MI) were applied
* Built Resnet classifier to sort 9 classes of emotions with EEG data, where the way to better extract common features across individuals were mainly focused on

*September 2022-Present*

## Dr. Sheng Yu’s Lab, Tsinghua University

*Statistics, Medical Knowledge Graph and NLP (Python, R)*

* Implemented the Region-enhanced Deep Graph Convolutional Network in the research of entity alignment based on medical term data, hoping to check whether attribute-biased sampling methods of raw data would improve the result of alignment
* Generated training data with annotation for the Optical Character Recognition task using Python

*March 2022-Presen*

# PUBLICATION

## Zhang, Y. & Sun, R. (2023). LMOOC research 2014 to 2021: What have we done and where are we going next? ReCaLL (SSCI)

*Research Article in Press, the Second Author, SSCI (Python)*

* Implemented Latent Dirichlet Allocation topic modeling method with python, analyze the abstracts of collected papers, and generate topic distribution of those abstracts for further interpretation
* Wrote primarily the methodology and results sections of the manuscript, and undertook the task of drawing schematics

*November 2021-March 2022 (Research)*

*January 2023 (published)*

# OTHER ACADEMIC ACTIVITIES (CHRONOLOGICAL)

## Oxford Study Programme: Global Challenges and the Future Humanity

*Online Winter Course*

* Cooperated with members in the group research of “emerging economies and SDGs,” and introduced the research methodology as the main speaker of the group in the presentation session

*January 2021-February 2021*

## Policy Attention and Policy Effect Measurement in Major Public Health Emergencies

*Student Research Training*

* Used the Latent Dirichlet Allocation topic modeling method to work with fellow students under the guidance of teacher to conduct policy effect measurement based on big data

*April 2021-January 2022*

## Innovation and Entrepreneurship Training Program for Students

*Beijing Area, Team in Charge*

* The project was initiated and sent to participate in the eighth Internet + School Competition as the preliminary work

*May 2022-Novenber2022*

## Spark 16th : Tsinghua University Student Research and Innovation Training Program

*Individualized Training Program*

* During the recruitment period, conducted research “The Generation of Dimensionality Reduction Strategies in Selective Memory Tasks: Whether Cognitive Load and Behavioral Activating System (BAS) are Influencing Factors,” designing behavioral experiment to explore the possible causes of a specific memory strategy

*December 2021-May 2022 (Recruitment)*

*June 2022-Present*

# CERTIFICATES AND AWARDS

* **IELTS:** 7 overall  *July 2020*
* **TEM-4:** Excellent *November 2022*
* Annual School-Level Scholarship: Integrated Excellence Scholarship  *2020-2021*
* Annual School-Level Scholarship: Science & Technology Innovation Scholarship *2021-2022*

# MAIN COURSES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Course Title*** | ***Credit*** | ***Grade*** | ***Point*** | ***Year-Semester*** |
| ***Neuroscience*** | | | | |
| Neural Modeling and Data Analysis | 3 | A+ | 4.0 | 2022-Autumn |
| System and Computational Neuroscience | 3 | A- | 4.0 | 2023-Spring |
| ***Statistics*** | | | | |
| Statistical Inference | 3 | A- | 4.0 | 2021-Autumn |
| Elementary Probability Theory | 3 | B | 3.3 | 2021-Autumn |
| Design and Analysis of Experiments | 3 | P | N/A | 2022-Spring |
| Linear Regression Analysis | 3 | P | N/A | 2022-Spring |
| Introduction to Data Science | 3 | A | 4.0 | 2022-Autumn |
| Introduction to Causal Inference | 3 | A- | 4.0 | 2022-Autumn |
| Advanced Topics in Casual Inference | 2 | A | 4.0 | 2023-Spring |
| ***Skills*** | | | | |
| Calculus C(1)(For Social Science) | 3 | A- | 4.0 | 2020-Autumn |
| Calculus C(2)(For Social Science) | 3 | A | 4.0 | 2021-Spring |
| Linear Algebra (English) | 4 | A | 4.0 | 2021-Autumn |
| Theory and Practice of Human Computer Interaction | 2 | A- | 4.0 | 2022-Spring |
| Students Research Training | 2 | A | 4.0 | 2022-Spring |
| Signals and Systems(in English) | 4 | P | N/A | 2023-Spring |
| Artificial Neural Network | 2 | Audit | Audit | 2022-Autumn |