

Zhidong Zhang

Wuhan University, Wuhan, China, 430072

☎ (+86)173-0715-0670 ✉ zhidong.zhang@whu.edu.cn 🌐 github.com/Antony-Zhang

EDUCATION

Wuhan University(WHU), Wuhan, China

Sep.2021 - Jun.2025

Bachelor of Computer Science - Software Engineering

GPA: 3.73/4.00 (88.93/100)

Courses: Data Structures & Algorithms, Machine Learning and Pattern Recognition, Discrete Math, Linear Algebra, Probability & Statistics, General Psychology, Cognitive Psychology, etc.

Honours: 2021 Excellent Student Scholarship Third-class Reward (Top 25% of 700 students)

RESEARCH EXPERIENCE

Data Analysis on Forward Flow Task (Remote Intern)

Apr.2024 - Jun.2024

Prof. **Yunzhe Liu**'s group, NKLCNL, BNU, China

- Pre-processed words data given by participants, inserted seed words and removed repeated or not-found words, splitted data according to different seed words;
- Generated embedding and computed different indicators, including sequence length, similarity of embedding, optimality divergence, range of semantic distance and forward flow;
- Computed correlation between different indicators and participants' scale scores, plotted graphs and implemented T-test to confirm statistical significance;

Classification of resting-state and task-state EEG signals (For Practice)

Dec.2023 - Feb.2024

Prof. **Dan Chen**'s group, School of Computer Science, WHU, China

- Pre-processed EEG signals with MNE-Python, including selecting epochs of interest and rejecting artifacts, by filtering, re-sampling and independent component analysis;
- Implemented Wavelets Transform with MNE-Python to get time-frequency representation and to analyze weighted frequency;
- Trained machine learning models with scikit-learn by different algorithms, including Support Vector Machine, K-Nearest Neighbor and Naive Bayes.

Poetry Recreation Based on Large Language Models

Aug.2023 - Nov.2023

Prof. **Hengjin Cai**'s group, School of Computer Science, WHU, China

- Learned prompt strategies, including Few-shot, Chain-of-thought, Tree-of-thought, Self-consistency, Generated-knowledge and Automatic Reasoning and Tool-use (ART);
- Programmed with popular relevant programming framework, including Langchain and Gradio;
- Discussed practical experiences and assisted in writing popular science books.

Q&A System Based on Knowledge Graph

Sep.2022 - Dec.2022

Prof. **Rong Xie**'s group, School of Computer Science, WHU, China

- Collecting data and assisted in organizing database based on knowledge graph Neo4j;
- Implemented Named Entity Recognition by a Long Short Term Memory (LSTM) model.

PROJECT EXPERIENCE

The Working Memory Capacity of RNN models (Summer School)

Jul.2024 - Current

Computational Neuroscience Program, Neuromatch Academy(NMA)

Leader

- Developed a RNN-based model with parameters simulating biological factors contributing to working memory;
- Built a neural network with two hidden layers to decode firing rates into previous input, and computed correlation between real and decoded input, which denote the WM capacity of RNN-model;
- Investigated the effects of each parameter as well as their interactions on the WM capacity, and also optimized the model for its maximal performance with gradient descent;

LLM-based Interactive Chinese Poetry Learning Assistant

Sep.2023 - Oct.2023

2023 Large Models Scene Innovation Competition - Innovation Award (Top 8%)

Leader

- Designed prompts for image production as well as text interaction for different users, integrated them into program with Langchain based on API of SparkDesk;
- Developed modules for online searching and file uploading based on RAG, including data indexing, query formulation, retrieval, data integration and response generation;
- Developed web interface based on Gradio, including history records, theme selection, mode switching and file uploading.

SKILLS

- **Data Analysis:** Machine Learning, Deep Learning, EEG processing, Digital signal processing
- **Programming:** Python, C/C++
- **Tools:** Unix Shell, VS Code, Git/GitHub, Zotero
- **Language:** English(IELTS 7.0)