Zhidong Zhang

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Education

Wuhan University, Wuhan, China *09/2021 – 06/2025*
B.Eng. Software Engineering GPA: 3.73/4.00 (88.93/100)

Courses: Data Structures, Computer Organization, Operating Syustems, Machine Learning, Database Systems, Discrete Mathematics, Linear Algebra, Probability & Statistics, Cognitive Psychology, etc.

Research Experience

RNN Analysis on Same-Different Task *09/2024 – 11/2024*
Chinese University of Hong Kong | Advisor: Dr. Xiangbin Teng *Remote*

- **Model Training:** Trained RNNs on the same-different task under varying noise levels by neurogym, optiomizing the code for readability and extensibility.
- **Model Analysis:** Analyzed normalized averages and principal components of RNN hidden states, performed linear fitting of activities at different time points to stimuli values, and analyzed the temporal scope.

Large Model Based Crossmodal Chinese Poetry Creation *07/2024 – 10/2024*
Wuhan University | Advisor: Dr. Weiping Zhu *Wuhan, China*

- **System Development:** Led the development of modules supporting cross-modal text and image inputs by miniGPT-4 and CLIP, enhancing iterative optimization mechanisms.
- **System Evaluation:** Evaluated poem quality across different input modalities, and the effect of optimization on three poem sets.

Data Analysis on Forward-Flow Task *04/2024 – 06/2024*
Beijing Normal University | Advisor: Prof. Yunzhe Liu *Remote*

- **Data Prepocessing:** Pre-processed word data for forward flow tasks, inserting seed words, removing duplicates, and generating embeddings.
- **Correlation Analysis:** Analyzed the correlation between participants' scale scores and statistical indicators, including sequence length, embedding similarity, optimality divergence, semantic distance range, and "forward flow".

Project Experience

The Working Memory Capacity of RNN models *07/2024 – 08/2024*
Computational Neuroscience Program, Neuromatch Academy

- **Memory Decoding:** Built a neural network to decode firing rates into previous inputs, computing correlations to assess the WM capacity of RNN models.
- **Parameter Exploration:** Led the exploration of effects of parameter simulating biological factors and interactions on WM capacity.

Publications

**Equally authorship*

L. Yang*, **Z. Zhang***, S. Liu, X. Dai, D. Zhou, and D. Cui, "Large Model Based Crossmodal Chinese Poetry Creation", in 2024 IEEE Smart World Congress (SWC), accepted.

Honors & Awards

2021 Excellent Student Scholarship Third-class Reward (1,000 CNY)
2021 Excellent Student Cadre
2021 Advanced Individual of Social Work

Skills

Data Analysis: Machine Learning, Deep Learning, EEG processing, Digital signal processing
Programming: Python, C/C++
Tools: Unix Shell, Git/GitHub, E-prime, Zotero
Language: English(IELTS 7.0), Mandarin Chinese(native)