# Zhidong Zhang

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## Education

**Wuhan University**, Wuhan, China *09/2021 – 06/2025*
B.Eng. Software Engineering GPA: 3.73/4.00 (88.90/100)

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

**University of Tübingen**, Tübingen, Germany *10/2025 – 10/2027 (Expected)*
M.Sc. Computational Neuroscience

## 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***, K. Niu, S. Pan, W. Zhu and C. Ma, "Large Model Based Crossmodal Chinese Poetry Creation," *2024 IEEE Smart World Congress (SWC)*, 2024, pp. 27-34. [**pdf**]

## 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)