# JIAJUN ZHU

3200106048@zju.edu.cn · (+86) 173-009-89120 · lanczoschu.github.io

## EDUCATION

**Zhejiang University**                                                  *Sept. 2020 - Now*

B.S. in Mathematics                                                          *Rank: 5%*

- Core Courses: Mathematical Analysis I/II/III (95/93/93), Advanced Algebra II (95), Ordinary Differential Equation (95), Mathematical Software (99)
- Rank: 1/64 in sophomore year

## PUBLICATION

1. **Jiajun Zhu**, Siqi Miao, Rex Ying, Pan Li. **Understanding Sensitive and Decisive Patterns in XAI: A Case Study of Interpretability in Geometric Deep Learning**, *In Preparation*.
2. Yifei Sun, Qi Zhu, Yang Yang, Chunping Wang, Tianyu Fan, **Jiajun Zhu**, Lei Chen. **Fine-tuning Graph Neural Networks by Preserving Graph Generative Patterns**, *Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI)*, 2024.

## RESEARCH

**Interactive Reasoning of Visual Language Models**                          *Jan. 2024 - Now*

Research Intern Supervised by Prof. Yaochu Jin                          *Westlake University*

- Proposed a paradigm enabling interaction with visual language models (VLMs) through visual prompts, specifically "click and segment" actions, to facilitate reference in chat interfaces.
- Enhanced the performance of VLMs in reasoning with segmented images by fine-tuning on our dataset.

**Interpretability of Geometric Deep Learning for Scientific Tasks**      *Dec. 2022 - Apr. 2024*

Research Intern Supervised by Prof. Pan Li                          *Georgia Institute of Technology*

- Benchmarked twelve geometric deep learning explanation methods with the purpose of scientific discovery.
- Established four fundamental observations to clarify the usage of explainability techniques.
- Drafted the article as the first author with Nature Machine Intelligence as the intended publication target.

**Pre-training and Fine-tuning of Graph Neural Networks**               *Aug. 2022 - Oct. 2022*

Research Intern Supervised by Prof. Yang Yang                          *Zhejiang University*

- Implemented five baseline methods and analyze their performances across eight molecular datasets.
- Conducted a theoretical analysis of our method from the perspective of Taylor decomposition and finalized the corresponding section of the paper.

**Graph Neural Networks for Electronic Property Prediction**             *Jan. 2022 - Jun. 2022*

Team Leader Supervised by Prof. Renjun Xu                          *Zhejiang University*

- Crawled 100k+ data of electronic density and band structure from Materials Project and Crystallography Open Database.
- Reproduced baseline models for material property prediction: CGCNN and MEGNet.

**Brain–computer Interface for Sleep Monitoring**                        *Oct. 2021 - Feb. 2022*

Research Assistant                                                  *FlexLink Technology Co., Ltd.*

- Tested several sleep-staging algorithm-based evaluation methods of EEG signal quality
- Drew Bland-Altman agreement, linear regression plots for statistics analysis.

## MISCELLANEOUS

- Programming languages: Python, C/C++.
- Software & Frameworks: LaTeX, Git, PyTorch, PyTorch Geometric, Transformers.