ZHANG Jiayuan

2006, Xiyuan Road, Chengdu • jiayuan.zhang@std.uestc.edu.cn • zhangjiayuan.me • +86 13212230327

Education

University of Electronic Science and Technology of China — Chengdu, China
B.S. in Communication Engineering. GPA 3.92. Top 5%. — Sep 2022 – Jun 2026
Awards: University Scholarship, UESTC (10%) — 2023 & 2024
Academic Excellence Award, Glasgow College, UESTC (10%) — 2023 & 2024
Watt Innovation Scholarship, Glasgow College, UESTC (15%) — 2023

University of Glasgow — Glasgow, UK
Joint Degree. B.S. in Communication Engineering. GPA 3.92. — Sep 2022 – Jun 2026

Publication

Rethinking Hebbian Principle: Low-Dimensional Structural Projection for Unsupervised Learning — NeurIPS, 2025
Shikuang Deng*, **Jiayuan Zhang***, Yuhang Wu, Ting Chen, Shi Gu

- A biologically inspired, unsupervised learning method that uses structural preservation and a lightweight auxiliary network to achieve state-of-the-art results without global backpropagation.

AI Research at the Brain & Intelligence Lab

Supervisor: Prof. Gu Shi

Denoising Spiking Neural Network — Feb 2024 - Apr 2024

Independent researcher

- Focused on the denoising performance of SNNs, I proposed a pooling layer technique that allows the network to filter out most of the noise.
- Together with temporally efficient training, the newly designed network achieved higher performance, reaching 98% accuracy in the binary classification of augmented 'arm clockwise' and 'arm anti-clockwise' categories on the DVS-CIFAR10 dataset, reaching SOTA accuracy in such binary classification.
- However, the scalability of this technique is limited; it does not work well with larger datasets. Nonetheless, I gained valuable experience in this project.

Investigation into Basic Components of Neural Networks — Apr 2024 - Jun 2024

Independent researcher

- After encountering challenges in a previous project, I focused on deepening my understanding of key neural network components such as Batch Normalization layers, Pooling layers, and Residual connections.
- Explored various approaches to explaining Deep Learning through research papers, covering topics like correlation, mutual information, internal covariance shift, and network degradation.
- Documented my findings and insights in a blog, contributing to the discussion on neural network interpretability.

Research on Hebbian Learning — Ongoing

Together with Dr. Deng Shikuang

- Investigated about Hebbian Learning, reaching SOTA on biologically plausible Hebbian Learning.
- Our paper is accepted by NeurIPS 2025.

Leadership & Activities

Football Club, Glasgow College UESTC

Vice President Sep 2023 – Sep 2024

- Led the organization and execution of training programs for new members of the department football team, ensuring they adapted quickly to the team's strategies and dynamics.
- Served as vice-captain during matches, playing a key role in decision-making on the field, boosting team morale, and fostering collaboration among teammates.
- Coordinated team activities and logistics for tournaments, helping to improve overall team performance and cohesion.

Watt Honor Class UESTC

Class Team Leader Sep 2023 – Ongoing

- Organized guest lectures featuring distinguished experts to share insights with junior students, resulting in positive feedback and inspiring many students to pursue advanced studies and research opportunities.
- Hosted an AI Demystification Workshop, demonstrating the inner workings of AI through live coding sessions, which enhanced participants' understanding of AI and sparked greater interest in the field.

6-hour Amusing Soul Fansub UESTC

Leader Sep 2023 – Sep 2024

- Led and supported a team of dedicated members in creating high-quality subtitles for popular English videos, ensuring both linguistic accuracy and cultural relevance.
- Provided guidance and linguistic support to team members struggling with post-listening interpretation, helping to enhance the overall quality of the subtitles produced.
- Contributed to the growth of the fansub's Bilibili account, which now boasts over 20k followers, thanks to the consistent efforts of current and former team members.

Skills & Interests

Technical: Proficient in Python related to deep learning *(Pytorch, numpy etc.);* Familiar with basic Linux and git commands.

Language: I scored 8.0 in IELTS, demonstrating a full capability to overcome language barriers in academic settings.

Interests: Brain-Inspired Intelligence, Computational Neuroscience.