YAN ZHANGLU (严章路)

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Educational Background

National University of Singapore **06/19-Present**

- Master's in Artificial Intelligence (First Class Honors);
- Ph.D. in Computer Science (Thesis title: Energy Efficient Spiking Neural Networks and Their Applications)
- PostDoc in Computer Science (Supervisor: AP.Wong Weng-Fai)
- NUS Research Achievement Award

Xi'an Jiaotong University **06/15-06/19**

- Computer Science; GPA: 88.9/100 (top 3.1%, 5/157)
- Outstanding Graduate; Excellent Student Leader; Outstanding Party Member; Excellent Student; Lu Shidi Scholarship; Student Council President and Party Branch Publicity Committee Member of Xi'an Jiaotong University Li Zhi College.

Research Interest (Corresponding author*)

Neuromorphic computing

[1] Tang.K**., Yan, Z*.**,& Wong, W.-F. "Sorbet: A Neuromorphic Hardware-Compatible Transformer-Based Spiking Language Model" Accepted by Forty-Second International Conference on Machine Learning ICML25
[2] **Yan, Z.**, Tang.K, Zhou, J., & Wong, W.-F "Low Latency Conversion of Artificial Neural Network Models to Rate-encoded Spiking Neural Networks" Accepted by IEEE Transactions on Neural Networks and Learning TNNLS25
[3] Tang.K**., Yan, Z*.**,& Wong, W.-F. "OneSpike: Ultra low latency spiking neural networks" Accept by IJCNN24
[4] **Yan, Z*.**,Zhou, J., & Wong, W.-F. " CQ+ Training: Minimizing Accuracy Loss in Conversion from Convolutional Neural Networks to Spiking Neural Networks" Accepted by IEEE Transactions on Pattern Analysis and Machine Intelligence TPAMI23
[5] **Yan, Z.**, Wang.S*., Tang.K, & Wong, W.-F. "Efficient Hyperdimensional Computing" Accepted by European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases ECML23, Oral
[6] **Yan, Z*.**, Zhou, J., & Wong, W.-F. (2021). Near Lossless Transfer Learning for Spiking Neural Networks. Accepted by Association for the Advancement of Artificial Intelligence AAAI21
[7] **Yan, Z.**, Yigit P, Wang.S, Tang.K, & Wong, W.-F. "Improving model robustness against noise with safe haven activations", On Submission
[8] **Yan, Z*.**, Wang.S., Tang.K, & Wong, W.-F "HyperSNN: A new efficient and robust deep learning model for resource constrained control applications" On Submission
[9] Zhou, J., **Yan, Z.** (equal contributions), Luo,T., Goh, R.S.M & Wong, W.-F "TTBP: Time-to-first-spike Neural Network Training with Direct Backpropagation" On Submission

AI + Bioinformatics

[1] **Yan, Z*.**, Chu,W, Sheng.Y, Tang.K, Wang.S, Liu.Y* & Wong, W.-F. "Integrating Deep Learning and Synthetic Biology: A Co-Design Approach for Enhancing Gene Expression via N-Terminal Coding Sequences," Accepted by ACS Synthetic Biology
[2] **Yan, Z*.**, Zhou, J., & Wong, W.-F. "Energy Efficient ECG Classification with Spiking Neural Network," Accepted by Biomedical Signal Processing and Control (BSPC) (over hundred citations)
[3] **Yan, Z*.**, Zhou, J., & Wong, W.-F. "EEG classification with spiking neural network: Smaller, better, more energy efficient," Accepted by Smart Health
[4] Yang,H, **Yan, Z,** Zhu,H, Yan, W, Chen,W & Fan,D "Numerical solution-based algorithm assisted development of a continuous flow microwave reactor" Accepted by Chemical Engineering Journal (CEJ).

AI + System

[1] **Yan, Z**, Bai,Z* & Wong, W.-F "Reconsidering the energy efficiency of spiking neural networks", On Submission
[2] **Yan, Z**, Bai,Z*, Tulika.M & Wong, W.-F. "SparrowSNN: A Hardware/software Co-design for Edge Computing", On Submission
[3]Gao,B, **Yan, Z,** Puru,S, Goh,Y, Lou Z, Li, H & Wong, W.-F. "Mahjong: Archiving Large Models using DNA Storage" On Submission

I'm interested in energy-efficient neuromorphic computing. Previously, I focused on software-level spiking neural networks and biomedical applications. Now, my research has shifted towards neuromorphic architecture, exploring software algorithms from a hardware perspective and pursuing 'AI + X,' where X represents hardware applications.

Google scholar： https://scholar.google.com/citations?user=pBjJBj0AAAAJ&hl=zh-CN

Selected Competitions

- National College Students Energy Conservation and Emission Reduction Competition: National Special Award (Category A Competition by the Ministry of Education)

Academic Service

- Reviewing Member of **TNNLS, ICML, ICCAD2021/22/23, IJCNN**
- Reviewing Member of the **NUS** Master of Computing admission (August2022 intake/January2022 intake/August2021 intake)

Teaching

- Teaching assistant of **CS5446** AI Planning and Decision Making;
- Teaching assistant of **CS1010E** Programming Methodology;
- Teaching assistant of **BT4222** Mining Web Data for Business Insights