

Zheng, Zishuo

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EDUCATION

Institute of Neuroscience, University of Chinese Academy of Sciences (UCAS)

Master's Degree in Computational Biology

09/2020 – 08/2023

Xi'an Jiaotong University (XJTU), China

Bachelor's Degree in Computer Science

09/2015 – 06/2019

RESEARCH & INDUSTRIAL EXPERIENCE

(Please refer to my website <https://zetaring.github.io/> for more details about each project.)

Remote Intern at University of Massachusetts, Amherst (UMass)

06/2023 – Present

- [On Going] Multisensory large language models.
- Object detection in ThreeDWorld for LLM-based multi-agent cooperation.

Student in Institute of Neuroscience, University of Chinese Academy of Sciences (UCAS)

09/2020 – 08/2023

- A unified theory for spatial and episodic memory representation in the brain.
- Spike neural network (SNN) model of the hippocampus under biological constraint.

Software Development Engineer (SDE) in Microsoft

07/2019 – 08/2020

- Microsoft patent "Risk Assessment of Firewall Rules in a Datacenter."
- Machine learning-based abnormal detection pipeline: "User Profile", "Code Profile," and "Lateral Movement Detection."
- Large-scale data pipeline based on Spark.

Intern in Microsoft Research Asia (MSRA)

07/2018 – 06/2019

- Industrial-level light-weighted convolutional neural network for Skype and Teams.
- Depth estimation and 3D reconstruction from monocular images.
- Network pruning and compression for semantic segmentation.

Summer Intern in Momenta (Autonomous Driving Startup Company)

05/2018 – 07/2018

- Visual and 3D cloud point training data sampling based on the Unreal4 game engine.
- Image distortion simulation for the fisheye camera.

Research Assistant in Artificial Intelligence and Robotics Institute, Xi'an Jiaotong University

09/2017 – 05/2018

- Transfer learning and network architecture search.
- SMART: Self-organized Multitask Accelerate Resilient Learning.

Intern in Ministry of Education Key Lab for Intelligent Networks and Network Security, Xi'an Jiaotong University

10/2015 – 06/2016

- Music game for the China Digital Science and Technology Museum.

PUBLICATIONS

(Master Thesis) **Computational Model of Hippocampus: A Unified Theory About Engram and Sharp-Wave Ripples**. bioRxiv preprint, 2023, doi: <https://doi.org/10.1101/2023.08.16.553536>

Aimaier G, Qian K, **Zheng Z**, Peng W, Zhang Z, Ding J, Wang X. **Interictal Heart Rate Variability as a Biomarker for Comorbid Depressive Disorders among People with Epilepsy**. Brain Sciences. 2022; 12(5):671. <https://doi.org/10.3390/brainsci12050671>

Z. Zheng, Y. Wei, Z. Zhao, X. Wu, Z. Li, and P. Ren, **Multitask Learning with Enhanced Modules**. 2018 IEEE 23rd International Conference on Digital Signal Processing (DSP), 2018, pp. 1-5, doi: <https://doi.org/10.1109/ICDSP.2018.8631696>

Y. Wei, Z. Zhao, Y. Tao, **Z. Zheng**, Z. Hao, and P. Ren, **Activations Quantization for Compact Neural Networks**. 2018 IEEE 23rd International Conference on Digital Signal Processing (DSP), 2018, pp. 1-5, doi: <https://doi.org/10.1109/ICDSP.2018.8631650>

HONORS AND AWARDS

Second Place in Microsoft Hackathon, Xi'an Site	10/2017
Scholarship of Shidi Lu (2%)	10/2017
First Prize in Chinese Colleges Computer Competition (CCCC) - Group Programming Ladder Tournament	03/2017
First Prize in The Mathematical Contest in Modeling, Shaanxi Province, China	10/2016
Silver Medal in ACM-ICPC China Shaanxi Provincial Programming Contest	05/2016