Zhiqun Zuo

299 Bayi Road, Wuchang District, Wuhan
86 15717131382 kinomoto.sakura.tomoyou@gmail.com linkedin.com/in/zhiqunzuo github.com/muzhibenying

Education

Wuhan University (WHU) **Sep. 2015 – Jun. 2019**
Bachelor of Science (Physics), Huanwu Peng Class (consist of only 20 students selected from freshman) *Wuhan, China*

- Overall GPA: 3.81/4.0; Major GPA: 3.81/4.0
- Academic Scholarships & Honors:
  - Second-class Scholarship, WHU Top 15% (for two consecutive academic years)
  - First-class Scholarship, WHU Top 5% (for the third academic year)
  - "Huanwu Peng" Scholarship (Awarded to the students of Huanwu Peng Class every year)
  - Interdisciplinary Contest In Modeling Honorable Mention

Wuhan University (WHU) **Sep. 2019 – Present**
Master of Engineering (Computer Science) *Wuhan, China*

- Overall GPA: 3.64/4.0; Average score: 91.41/100
- Academic Scholarships & Honors:
  - Freshman Scholarship, WHU 6/167
  - First-class Scholarship for Graduate Students, WHU Top 10%

Research Experience

Research: Histopathology Image classification **Sep. 2019 – Present**
Wuhan University *Wuhan, China*
Objective: Developing a pipeline for histopathology image classification with few hundreds of samples when pixel-level or patch-level annotations are not accessible.

- Developed efficient parallel computing methods to process histopathology images with an average size of over 1GB. Used threshold (Otsu's) method to extract tissue areas from giant images.
- Compared different methods for feature extraction in an unsupervised scenario including transfer learning, contrastive learning, BiGAN, expectation-maximization method, and so on.
- Explored various kinds of pooling methods to aggregate local features: RNN-based method, multiple instance learning method, attention pooling.
- Proposed a context-guided attention pooling mechanism that can efficiently calculate attention weights while taking the interaction between different local features into consideration even when the number of features is very large.

Internship: CCISTIC Distance Internship Researcher **Jan. 2021 – May 2021**
Cambridge University *Remote*
Objective: Exploring graph representation learning method in an unsupervised manner.

- Analyze tens of articles from the top conferences of graph representation learning in recent 3 years and write a research proposal.
- Proposed an idea that the node representation can be regarded as a view of the whole graph and tried to maximize the mutual information between them based on this idea. The experiments on the MUTAG dataset showed a slight improvement in performance in the downstream task. Moreover, it can delay the declining trend when deepening the graph convolutional network.
- Constructed a differentiable graph generation model which can be used in a BiGAN. The model was built in an auto-regressive manner and can train in an end-to-end manner. However, the quality of generated graph needed to be improved.

Project: Cloud Platform for Histopathology Image Labelling **Jun. 2019 – Aug. 2019**
Wuhan University *Wuhan, China*
Objective: Developing a cloud platform that can load and visualize gigapixels images for experts making local and global labels.

- Developed the backend API for the cloud platform with the Django framework.

Project: OpenITS **Aug. 2020 – Dec. 2020**
University of California, Berkeley *Remote*
Objective: Developing an online education website that can divide every problem into several steps. Each step contains some hints and scaffold problems to help students to learn.

- Designed hints for algebra problems and translated them into structured data.

Extracurricular Activities

Discussing Course: AGI Safety Fundamentals **July 2021 – Sept. 2021**

Effective Altruism Cambridge *Remote*

Discussing topics related to AI safety research and doing a final project. The discussed topics include:

- Conception of artificial general intelligence (AGI) and testing methods
- Mesa-Optimization and Goal-directed agents
- Threat models of AGI
- Human feedback learning
- Embedded agents, open-ended AI and explainable AI

Publications

- Liu Juan, Zhiqun Zuo, and Guangsheng Wu. Link prediction only with interaction data and its application on drug repositioning. *IEEE transactions on nanobioscience* 19.3 (2020): 547-555.
- Chen Hua, Liu Juan, Wen Qingman, Zhiqun Zuo, Liu Jiasheng, Feng Jing and Xiao Di. CytoBrain: Cervical cancer screening system based on deep learning technlogy.*Journal of Computer Science and Technology* 36.2 (2021): 347-360.
- Zhiqun Zuo, Juan Liu, Yuqi Chen, Jing Feng, Di Xiao, Baochuan Pang. A context-guided attention method for integrating features of histopathological patches. *Under reviewed by IET Image Processing*

Patents

- Liu, J., Zuo, Z., Chen, Y., Li, Z., & Feng, J. (2020). Attention pooling-based end-to-end histopathological image classification method (202011454778.1). China National Intellectual Property Administration. http://www.soopat.com/Patent/202011454778

Standard Tests

IELTS: 7.0 (L:7.5, R:8.5, W:6.5, S:6.0)
GRE: 325 (V: 156, Q: 169, AW: 3.5)

Skills

Programming: Python, C++, SQL
Deep Learning: Pytorch, Tensorflow, Keras
Language Skills: Native in Chinese, Fluent in English