Zhisheng Zhong

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Research Interests

Deep Learning, Computer Vision and their applications

Education

Sep. 2016 –Jul. 2019 **M.S., Computer Science**, *Key Lab of Machine Perception*, **Peking University**, Beijing, CH.
Advisor: Prof. **Zhouchen Lin** (IEEE Fellow) and Prof. **Chao Zhang**

Nov. 2017 –Feb. 2018 **Visiting Scholar, Statistic**, **Florida State University**, Tallahassee, USA.
Advisor: Prof. **Yiyuan She**

Sep. 2012 –Jul. 2016 **B.E., Telecommunication**, **Beijing University of Posts and Telecommunications**, Beijing, CH.
GPA: 89/100, Ranking: Top-3%

Publications

- ***Journals***

[1] **Zhisheng Zhong**, Fangyin Wei, Zhouchen Lin, Chao Zhang. ADA-Tucker: Compressing Deep Neural Networks via Adaptive Dimension Adjustment Tucker Decomposition. Elsevier, Neural Networks, Volume 110, Feb. 2019, Pages 104-115. ***JIF: 7.197***. [pdf].

- We propose a mechanism called adaptive dimension adjustment and extend it with Tucker decomposition to compress CNN models effectively.

- ***Conferences***

[1] **Zhisheng Zhong**, Tiancheng Shen, Yibo Yang, Chao Zhang, Zhouchen Lin. Joint Sub-bands Learning with Clique Structures for Wavelet Domain Super-Resolution. Advances in Neural Information Processing Systems (NeurIPS), Montreal, CA, Dec. 2018. [pdf].

- We propose SRCliqueNet with clique structure to reconstruct the high resolution image with better textural details and quantitative results in the wavelet domain.

[2] Yibo Yang, **Zhisheng Zhong**, Tiancheng Shen, Zhouchen Lin. Convolutional Neural Networks with Alternately Updated Clique. In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Salt Lake City, USA, June 2018. ***Oral***, accepted rate: ***2.2%***. [pdf] and [code].

- We propose a novel and efficient CNN architecture with alternately updated clique. In the same block, there are both forward and backward connections between any two layers.

[3] **Zhisheng Zhong**, Yong Sun, Yue Wang, et al. An Improved Collaborative Filtering Recommendation Algorithm not Based on Item Rating. International Conference on Cognitive Informatics & Cognitive Computing (ICCI*CC), Beijing, CH., June 2015 (undergraduate period). [pdf].

- We propose a novel algorithm combining N nearest neighbors and collaborative filtering algorithms to make prediction in the binary type recommended system.

- ***Submissions***

[1] Xia Li, Tianchen Shen, **Zhisheng Zhong**, Jianlong Wu, Zhouchen Lin, Hong Liu. Boundary Shift: A General Lightweight Plug-in Module for Improving Semantic Segmentation. Submitted to Conference on Computer Vision and Pattern Recognition (CVPR), 2019.

- ***Patents***

[1] Zhouchen Lin (Advisor), **Zhisheng Zhong**, et al. Joint Sub-bands Learning with Clique Structures for Wavelet Domain Super-Resolution. Chinese Patent No.: 201811007566.1.

[2] Zhouchen Lin (Advisor), **Zhisheng Zhong**, et al. A DNN Compression Method Based on Adaptive Dimension Adjustment Tucker Decomposition. Chinese Patent No.: 201710623220.3.

Honors & Awards

2018 Bao Steel Education Scholarship (10,000 CNY), Peking University (Top-5%)
2018 Merit Student, Peking University (Top-5%)
2016 Third Prize, National Graduate Contest on Smart-city Technology and Creative Design, China
2016 Excellent Graduate, Beijing University of Posts and Telecommunications (Top-5%)
2015 Honorable Prize, Mathematical modeling competition for American college students, USA
2014 Merit Student, Beijing University of Posts and Telecommunications (Top-5%)
2014 National Encouragement Scholarship, Beijing University of Posts and Telecommunications (Top-10%)
2013 Merit Student, Beijing University of Posts and Telecommunications (Top-5%)
2013 National Encouragement Scholarship, Beijing University of Posts and Telecommunications (Top-10%)
2013 First Prize, Beijing undergraduate physics competition, Beijing (Top-10%)
2013 First Prize, Beijing undergraduate mathematics competition, Beijing (Top-10%)

Experiences

Mar. 2018 –May. 2018 **Research Intern**, *Microsoft Research Asia*, Beijing, CH.
We design compacted CNN models with different-scales to detect face key points on Widerface dataset.

Nov. 2017 –Feb. 2018 **Visiting Scholar**, *Florida State University*, Tallahassee, USA.
We give a mathematical formulation of clustering with concurrent dimension reduction and proposes an optimization-based inherent clustering framework.

Skills

Language Chinese: Native; English: Fluent, TOEFL (R:24 L:20 S:21 W:20), CET-6, CET-4
Programming Experienced in Python, MATLAB, C++
ML tools Experienced in Pytorch, Keras, TensorFlow, familiar with Caffe, Scikit-learn

Courseworks

M.S. Pattern Recognition, Machine Learning, Deep Learning, Computer Vision, Digital Image Processing, Convex Optimization.

B.E. Calculus, Probability Theory, Linear Algebra, Information Theory, Principles of Communications, Digital Signal Processing, C++ Programming, Data Structures and Algorithm Design.

Miscellaneous

- Traveling
- Running
- Swimming
- Badminton