

Zhizhong Li

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Research Interests

Graph Convolution | Reinforcement Learning | Generative Models | Deep Learning | Ensemble Learning | Geometric Optimization

Education

- 2015–Now **The Chinese University of Hong Kong, Hong Kong.**
Ph.D. Candidate, Information Engineering. Advisor: Prof. Dahua Lin
- 2011–2015 **Peking University, Beijing, China.**
M.S. School of Mathematical Sciences. Symplectic Geometry. Advisor: Prof. Xiaobo Liu
- 2006–2010 **Zhengzhou University, Zhengzhou, China.**
B.S. Mathematics and Applied Mathematics
B.A. Double Major in English

Publication

- Lanxin Lei*, **Zhizhong Li***, Dahua Lin. Biased Estimates of Advantages over Path Ensembles. *Under Review*, 2019.
 - Sijie Yan*, **Zhizhong Li***, Yuanjun Xiong, Huahan Yan, Dahua Lin. Convolutional Sequence Generation for Skeleton-Based Action Synthesis. *Under Review*, 2019.
 - Xingxing Zou*, **Zhizhong Li***, Ke Bai, Dahua Lin, Waikeng Wong. Explainable Clothing Aesthetic Evaluation with Gradient Penalty. *Under Review*, 2019.
- [1] **Zhizhong Li**. A Stroke of Genius: Generating Images. In Xiao'ou Tang and Yukun Chen, editors, *Fundamentals of Artificial Intelligence (Senior High School Edition)*, chapter 8, pages 135–152. East China Normal University Press and The Commercial Press, 2018. [\[link\]](#)
 - [2] **Zhizhong Li** and Dahua Lin. Integrating Specialized Classifiers Based on Continuous Time Markov Chain. In *Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI)*, pages 2244–2251, 2017. [\[paper\]](#) [\[code\]](#)
 - [3] Xingcheng Zhang*, **Zhizhong Li***, Chen Change Loy, and Dahua Lin. PolyNet: A Pursuit of Structural Diversity in Very Deep Networks. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 718–726, 2017. [\[paper\]](#) [\[repo\]](#)
 - [4] **Zhizhong Li**, Deli Zhao, Zhouchen Lin, and Edward Y Chang. Determining Step Sizes in Geometric Optimization Algorithms. In *2015 IEEE International Symposium on Information Theory (ISIT)*, pages 1217–1221. IEEE, 2015. [\[paper\]](#) [\[code\]](#)
 - [5] **Zhizhong Li**, Deli Zhao, Zhouchen Lin, and Edward Y Chang. A New Retraction for Accelerating the Riemannian Three-Factor Low-Rank Matrix Completion Algorithm. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 4530–4538, 2015. [\[paper\]](#) [\[code\]](#)

Internship

May–Aug **SenseTime**, *Shenzhen, China*.

2018 *Intern at Training & Supercomputing Platform* Supervisor: Shengen Yan
Develop the back-end of the SenseStudy AI package. It is an interactive system that helps beginners to learn concepts and techniques in machine learning.

Aug 2014– **HTC**, *Beijing, China*.

Jul 2015 *Intern at Advanced Algorithm Research* Supervisor: Deli Zhao
Research on geometric optimization algorithms. Applying Riemannian geometry in solving the low-rank matrix decomposition problem for recommendation systems.

Teaching Assistant

TA at - Linear Algebra and Vector Calculus for Engineers (ESTR), *Spring 2019 and 2018*

CUHK - Introduction to Engineering Design, *Fall 2018, 2017 and 2016*

- Microcontrollers and Embedded Systems, *Spring 2017*

- Engineering Physics: Electromagnetics, Optics and Modern Physics, *Spring 2016*

- Simulation and Statistical Analysis, *Fall 2015*

TA at - Geometry, School of Mathematics, *Fall 2013*

PKU - Linear Algebra, Guanghua School of Management, *Spring 2013*

- Calculus, School of Economics, *Fall 2012*

Projects

Jul–Aug **DeeCamp 2018**.

2018 *Leader of the Killers Team*

We use reinforcement learning to play StarCraft II. Our group proposed a novel paralleled multi-environment shaping method, which successfully solved the *Building Marines* minigame. [[demo video](#)]

Feb–May **Clean Chinese Rare Book Images with GAN**.

2018 *Work with Yu'an Liu*

The digitalized Chinese rare books often has bad visual quality due to yellowish, translucent pages. We use CycleGAN with a novel edge-keeping loss term to remove artifacts and improve the image quality. [[demo](#)]

Nov 2017– **AI Textbook**.

Apr 2018 *Leader of the Writting Group*

We wrote the first AI textbook in the world for high school students, which has been widely acclaimed. Except for the organizing and proofreading work, I am also the author of Chapter 8. [[Douban](#)] [[Amazon](#)]

Jul–Sep **ImageNet 2016 Competition**.

2016 *Co-leader of the CU-DeepLink Team*

We won the third place in the classification+localization track of ILSVRC 2016. The proposed Very Deep PolyNet model achieves the highest single-model accuracy in the world at the time. [[project](#)] [[results](#)]

Contribution

Reviewer IJCV, NIPS, PRCV, Journal of Harbin Institute of Technology (New Series)

Contributor [LIBLINEAR.jl](#) | [ganbase](#) | [LaTeX-Workshop](#) | [julia](#) | [vscode](#)

Skills

- Python (PyTorch, TensorFlow), Julia, Matlab

- C#, ASP.NET

Interests

- Classical Guitar

- Squash