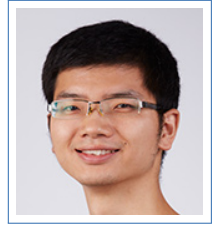


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Work Experience

Oct 2019– **SenseTime, Senior Researcher**, Hong Kong, China.

Now **2023-now** Conduct an ongoing research that aims to improve the generalizability of **self-supervised** models such as DINOv2 by encouraging **feature diversity** in training.

2022-now Lead a small team to develop a **cross-platform** (win+linux) **deep learning toolbox in C++17** based on libtorch. It supports **training** models for **segmentation** (UNet, SegFormer), **detection** (RetinaNet), **classification** (ResNet), and **anomaly detection** (PatchCore). It powers the SensePower Turbo-PC/Cloud which enables customers to train their deep models with a few clicks. I designed the software architecture, including the **dynamic registration** system, **parallel tasking** system, **extension** system, **training runner**, *etc.* I set up the **CI/CD** and the **conan** package manager for continuous **unit testing**, **linting**, and **packaging**. I implemented key features in C++ including **multi-GPU training**, **SyncBN**, **mixed precision training**, **onnx export**, **dataset cache**, and **python API**, *etc.* I contributed **38K LOC** in **507 merge requests** by now.

2021-2022 Led a team to support **OCR** projects. Developed the **key information extraction** technology to extract customer-interested information from **videos and images**. It powers our product for TV stations to digitalize text information in television shows/news. I designed a **text FX synthesis system** based on **puppeteer/css/js** to generate training images with **annotation**.











2020-2021 Led a team to develop the **AIGC** for **advertisement video production**. The core is **automatic video matting**, which can automatically **swap natural backgrounds** in the video without the need for a green screen. We improved the production quality by **background noise removal**, **hair matting**, **border refinement**, **fg relighting**, *etc.* We improved the processing speed to **40ms/frame** by reducing model size, region-based processing, and **customized cuda op**.

2019-2022 The **co-creator** and **maintainer** of the influential open-source computer-vision tool-boxes **mmaction2**, **mmpose**, **mmocr** and **mmediting**. The author of **denseflow**.






2019-now 3 patents granted, 5 more patents submitted.

Selected Publication

- ICCV [1] Haoqi Wang*, **Zhizhong Li***, Wayne Zhang. Get the Best of Both Worlds: Improving Accuracy and Transferability by Grassmann Class Representation. *ICCV* 2023.   **geometric dl**
- CVPR [2] Haoqi Wang*, **Zhizhong Li***, Litong Feng, Wayne Zhang. ViM: Out-Of-Distribution with Virtual-logit Matching. *CVPR* 2022.   **out of distribution**
- ICCV [3] Sijie Yan*, **Zhizhong Li***, Yuanjun Xiong, Huahan Yan, Dahua Lin. Convolutional Sequence Generation for Skeleton-Based Action Synthesis. *ICCV* 2019.   **action generation**
- CVPR [4] 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)*, 2017.   **architecture**
- CVPR [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 CVPR*, pages 4530-4538, 2015.   **geom opt**
- NeurIPS [6] Hao Sun, **Zhizhong Li**, Xiaotong Liu, Bolei Zhou, Dahua Lin. Policy Continuation with Hindsight Inverse Dynamics. *NeurIPS* 2019.   **rl**

- [7] **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.   [ensemble](#)
 - [8] **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.   [geom opt](#)
 - [9] Anyi Rao, Linning Xu, **Zhizhong Li**, Qingqiu Huang, Zhanghui Kuang, Wayne Zhang, Dahua Lin. A Coarse-to-Fine Framework for Automatic Video Unscreen. *IEEE Transactions on Multimedia (TMM)* (2022).   [video matting](#)
 - [10] Zhanghui Kuang, Hongbin Sun, **Zhizhong Li**, Xiaoyu Yue, Tsui Hin Lin, Jianyong Chen, Huaqiang Wei, Yiqin Zhu, Tong Gao, Wenwei Zhang, Kai Chen, Wayne Zhang, Dahua Lin. MMOCR: A Comprehensive Toolbox for Text Detection, Recognition and Understanding. *The 29th ACM International Conference on Multimedia (MM)*. 2021.   [ocr](#)
 - [11] Cong Ma*, **Zhizhong Li***, Dahua Lin, Jianshe Zhang. Parallel Multi-Environment Shaping Algorithm for Complex Multi-step Task. *Neurocomputing* (2020).   [rl](#)
- * Equal contribution.

Internship and Projects

- Jul–Aug 2018 **DeeCamp**, *Leader of the Killers Team*, Beijing, China.
Led a team to use RL to play StarCraft II. I proposed the paralleled multi-environment shaping method, which surpasses human players in the challenging *Building Marines* minigame. 
- May–Aug 2018 **SenseTime Intern**, Supervisor: Shengen Yan, Shenzhen, China.
Developed the backend of the **SenseStudy** using Python. It is an interactive programming system consisting of tailored experiments that lets beginners learn basic concepts in machine learning.
- Nov 2017–Apr 2018 **AI Textbook**, *Leader of the Writting Group*.
We wrote the first AI textbook in China for high schools. I organized the progress of chapter owners (I own Chapter 8) and merged them as a whole. Proofread and edited more than 1500 places.  
- Jul–Sep 2016 **ImageNet 2016 Competition**, *Co-leader of the CU-DeepLink Team*.
We won third place in the classification+localization track of ILSVRC 2016. The proposed PolyNet (published at CVPR 2017) achieved the highest single-model accuracy in the world at the time.  
- Aug 2014–Jul 2015 **HTC Intern**, Supervisor: Deli Zhao, Beijing, China.
Improved the Riemannian optimization algorithm to solve the low-rank matrix decomposition problem for recommendation systems. Results are published at CVPR 2015 and ISIT 2015.

Education

- 2015–2019 **The Chinese University of Hong Kong**, *Hong Kong*.
Ph.D., Information Engineering. Advisor: Prof. Dahua Lin, Co-Advisor: Prof. Xiaoou Tang
- 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

Contribution

- Reviewer TPAMI, IJCV, NeurIPS, ICLR, CVPR, PRCV, TETCI
- Contributor [MMAction2](#) | [MMPose](#) | [MMEediting](#) | [MMOCR](#) | [LIBLINEAR.jl](#) | [setup](#) | [denseflow](#) | [decord](#) | [LaTeX-Workshop](#) | [julia](#) | [vscode](#)

Skills

- Python, C++, PyTorch, Julia, Git

Interests

-  Classical Guitar  Squash