

Zheyuan Li | Résumé

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Education

B.E in Software Engineering

Northwestern Polytechnical University,
GPA 82.16/100

Xi'an, P.R.China

2018–2022

Thesis Title: Research of Single Image Super Resolution Based on Attention Mechanism

Research Experience

Shenzhen Institute of Advanced Technology

Research Assistant

Shenzhen, P.R.China

2021.6 - present

This experience includes a one-year internship and one-year **full-time** employment in **XPixel** at **SIAT**. I served as a guest student from 2021.6 to 2022.6. Since 2022.7, I have been employed as a research assistant supervised by **Prof. Chao Dong** and **Prof. Yu Qiao**. I also work closely with Ph.D. candidate Xiangyu Chen. I am engaged in research in the field of super-resolution, designing efficient structures for image super-resolution and optimizing high-performance networks for low-level vision tasks.

Publications

[Google Scholar](#) Citation: 240 (Up to Mar. 2024)

Research Interest: Deep Learning, Computer Vision, Low-level Vision, Multi-modal

Depicting Beyond Scores: Advancing Image Quality Assessment through Multi-modal Language Models

Zhiyuan You*, **Zheyuan Li***, Jinjin Gu*, et al

Proceedings of the ECCV, 2024

A Comparative Study of Image Restoration Networks for General Backbone Network Design

Xiangyu Chen*, **Zheyuan Li***, Yuandong Pu*, et al

Proceedings of the ECCV, 2024

Scaling Up to Excellence: Practicing Model Scaling for Photo-Realistic Image Restoration In the Wild

Fanghua Yu*, Jinjin Gu*, **Zheyuan Li**, et al

Proceedings of the IEEE/CVF CVPR, 2024

github.com/Fanghua-Yu/SUPIR 3000+ stars

Towards Efficient SDRTV-to-HDRTV by Learning from Image Formation

Xiangyu Chen, **Zheyuan Li**, et al

under review by IEEE TPAMI

GET3D–: Learning GET3D from Unconstrained Image Collections

Fanghua Yu, Xintao Wang, **Zheyuan Li**, et al

<https://arxiv.org/abs/2307.14918>

Blueprint Separable Residual Network for Efficient Image Super-Resolution [[PDF](#), [Code](#), [Poster](#)]

Zheyuan Li, Yingqi Liu, Xiangyu Chen et al

Proceedings of the IEEE/CVF CVPR Workshops, 2022

Research of Single Image Super Resolution Based on Attention Mechanism [PDF]

Zheyuan Li, Xiangyu Chen, Yu Qiao et al

Published in Journal of Integration Technology, 2022

Efficient Image Super-Resolution using Vast-Receptive-Field Attention [PDF, Code]

Zhou Lin, Haoming Cai, Jinjin Gu, Zheyuan Li, et al

Proceedings of the IEEE/CVF ECCV Workshops, 2022

Research Projects

Multimedia Laboratory at SIAT-CAS

Research Assistant

Shenzhen, P.R.China

2021.7–Now

Classic Low-level Vision Backbone Design

2021.7–Now

This set of works focuses on network designs for low-level vision. In 2021.7 - 2022.2, I benchmarked the early SR network designs and published a survey and benchmark paper *Research of Single Image Super Resolution Based on Attention Mechanism*. Later in 2022.2-2022.5, I participated in the CVPR workshop NTIRE 2022 Efficient SR track and won 1st place in Model Complexity. The winning model was called BSRN, which is presented in *Blueprint Separable Residual Network for Efficient Image Super-Resolution*. The peer work *VapSR Efficient Image Super-Resolution using Vast-Receptive-Field Attention*, was also accepted by the ECCV workshop. Aside from SR, I also investigated HDR restoration. In 2022.9-2023.7, I modify an SDRTV-HDRTV restoration network *Towards Efficient SDRTV-to-HDRTV by Learning from Image Formation*. Meanwhile, I was engaged in a general backbone network design for multi-task restoration. Specifically, we select 5 typical restoration tasks as the benchmark, achieving SOTA performance. Beyond that, we perform significantly over existing methods on the all-in-one task, proving our superiority.

Multimedia Content Generation

2022.4–Now

This set of works is about 2D and 3D content generation, including *GET3D–: Learning GET3D from Unconstrained Image Collections* and *Scaling Up to Excellence: Practicing Model Scaling for Photo-Realistic Image Restoration In the Wild*. I explored generative models (GAN, Diffusion Model) from these experiences.

Multi-Modal Large Language Model Implementation on Low-Level Vision

2023.9–Now

Depicting Beyond Scores: Advancing Image Quality Assessment through Multi-modal Language Models was the newest research topic that I played as the first author. This work is the first attempt to implement MLLMs on IQA. To integrate language into IQA, we establish a hierarchy of tasks for DepictQA, inspired by human evaluation. To train the proposed DepictQA, we further construct a multi-modal IQA dataset named M-BAPPS by collect ing text descriptions based on the existing BAPPS IQA dataset. With the dataset mentioned above, we resort to Multi-modal Large Language Models (MLLMs) to bridge the gap between images and descriptive texts.

Awards

2022: Winner Award (Champion) in NTIRE 2022 Challenge on Efficient Image Super-Resolution

2021: Special Award (Champion) in Shaanxi Division, National College Student Engineering Training Competition

Languages

English: TOEFL iBT: 99 (best of scores)

Chinese(Mandarin): native