

Yanhui Guo

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EDUCATION BACKGROUND

McMaster University

Ph.D. candidate, Electrical and Computer Engineering.

Research Interests: Image/Video Restoration & Video Analysis

Hamilton, ON, Canada

Jan. 2020- Mar. 2024

Advisor: Prof. Xiaolin Wu

Huazhong University of Science and Technology

M.A.Sc., Artificial Intelligence and Automation

Wuhan, China

Sept. 2017-Jun. 2019

Wuhan University of Technology

B.Eng., Electronic and Information Engineering

Wuhan, China

Sept. 2013-Jun. 2017

PROFESSIONAL EXPERIENCE

Noah's Ark Lab of Huawei, Canada

Associate Researcher in Computer Vision and Artificial Intelligence

Remote, Canada

Jan. 2022- Present

- Research on video understanding (Jan.2022 - Sep.2022)
- Research on 3D shape reconstruction (Sep.2022 - Present)
- Winning runner-up in the ActivityNet Challenge (CVPR2022 workshop, [Video Link](#))
- One paper on Temporal Action Localization was submitted to a journal([Paper Link](#))

McMaster University

Teaching Assistant in ECE

Hamilton, Canada

Jan. 2020- Present

NetEase Games, AI Lab

(Full-time) Machine Learning Engineer

Hangzhou, China

July. 2019-Jan. 2020

- Developing a deep motion generation model for automatic 3D digital human animation.
- Working on a neural solver for optical motion capture (MoCap) data cleaning.

The Hong Kong Polytechnic University (PolyU)

(Full-time) Research Assistant in ME

Hong Kong, China

Jan. 2019-July. 2019

- Working on the system development of micro-drones.
- Developing dynamic obstacle avoidance algorithms for flying robots.

Tencent, Game AI Group

(Internship) Machine Learning Engineer

Shenzhen, China

Apr. 2018-July. 2018

- Participate in developing a multi-agent AI system of a MOBA game (Honor of Kings).

SELECTED PROJECTS

Learning Critical Residual Pixels Prediction for Image Compression

Hamilton, Canada

Mar. 2022- Present

- This is ongoing research work. The objective is to increase the compression quality of current image compression methods by marginal extra bitstream cost.

Degradation-Invariant Image Representation Learning

Hamilton, Canada

July. 2021- March. 2022

- A deep noise-resistant representation learning method via the information bottleneck. ([Paper Link](#))

Monitor-Induced Data Collection for Image Restoration

Hamilton, Canada

July. 2020- Nov. 2021

This work was accepted by TIP

- An automatic system for real-world super-resolution data collection. ([Paper Link](#))
- Extended work for deblurring dataset collection. ([Paper Link](#))

Solving a Parametric Image Restoration Problem with a Single Model

Hamilton, Canada

June. 2020- May. 2021

This work was accepted by NeurIPS 2021

- We proposed a novel system called functional neural network (FuncNet) to solve a parametric image restoration problem with a single model. ([Paper Link](#))

Soft-decoding of Very Low Bit-rate Face Videos

Hamilton, Canada

Feb. 2020- May. 2020

One paper was accepted by ACM MM 2020

- A novel deep multi-modality neural network for soft-decoding of compressed videos. ([Paper Link](#))

Autonomous Landing of a Multirotor Drone on a Moving Platform

Wuhan, Hubei

Jan. 2017- Jan. 2019

This work was my Master's thesis, which focused on robotic control and vision-based navigation algorithms. ([Demo Video1](#), [Demo Video2](#))

PUBLICATIONS

- **Yanhui Guo**, Fangzhou Luo and Xiaolin Wu. "Perception-Critical Image Compression by Deep Supplementary Sketching", (Under Review) ([Paper Link](#)).
- **Yanhui Guo**, Peng Dai and Juwei Lu. "Refining Implicit Neural Action Field for Temporal Action Localization", (Under Review) ([Paper Link](#)).
- **Yanhui Guo**, Fangzhou Luo and Xiaolin Wu. "On Improving the Noise-Robustness of Representations via Domain Translation", (Under Review) ([Paper Link](#)).
- **Yanhui Guo**, Xiao Shu and Xiaolin Wu. "Data Acquisition for Dual-reference Deep Learning of Image Super-Resolution", (Transactions on Image Processing (TIP)) ([Paper Link](#)).
- **Yanhui Guo**, and et.al. "Semantic-Aware Latent Space Exploration for Face Image Restoration", IEEE International Conference on Multimedia and Expo (ICME, 2022) ([Paper Link](#)).
- Fangzhou Luo, **Yanhui Guo** and Xiaolin Wu. "Functional Neural Networks for Parametric Image Restoration Problems", Thirty-fifth Annual Conference on Neural Information Processing Systems (NeurIPS, 2021) ([Paper Link](#)).
- **Yanhui Guo**, Xi Zhang and Xiaolin Wu. "Deep Multi-modality So-decoding of Very Low Bit-rate Face Videos", 2020 ACM International Conference on Multimedia (ACM MM, 2020) ([Paper Link](#)).

Others

- Paper Reviewer: CVPR 2022, ICML 2022, NeuIPS 2022, ECCV 2022, CVPR 2023.
- Coding Skills: Python, Matlab, C++, JavaScript, PyTorch, Tensorflow, Caffe, Opencv, Unity3D