




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- Present

Advisor: Prof. Xiaolin Wu

Huazhong University of Science and Technology

M.A.Sc., Artificial Intelligence and Automation

Wuhan, China

Wuhan University of Technology

B.Eng., Electronic and Information Engineering

Wuhan, China

PROFESSIONAL EXPERIENCE

Noah's Ark Lab of Huawei, Canada

Researcher in Computer Vision and Artificial Intelligence

Markham, Canada

Jan. 2022- Present

- Research on 3D shape reconstruction (Sep.2022 - Present)
- Research on video understanding (Jan.2022 - Sep.2022)
- 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. "Defending against Noise in Representations via Target-Guided Dual-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