

# Yanhui Guo

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## EDUCATION BACKGROUND

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### 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

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### McMaster University

*Teaching Assistant in ECE*

**Hamilton, Canada**

*Jan. 2020- Present*

### Noah's Ark Lab of Huawei, Canada

*(Part-time) Associate Researcher*

**Markham, Canada**

*Jan. 2022- Mar. 2023*

- Research on 3D shape reconstruction (Sep.2022 - Mar.2023)
- 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](#))

### 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

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### Learning Critical Residual Pixels Prediction for Image Compression

**Hamilton, Canada**

*Mar. 2022- Present*

- 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

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- **Yanhui Guo**, Fangzhou Luo and Xiaolin Wu. "Perception-Critical Image Compression by Deep Supplementary Sketching", (Under Review)([Paper Link](#)).
- **Yanhui Guo**, Peng Dai, Juwei Lu and Li Cheng. "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

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