# Yanhui Guo

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## EDUCATION BACKGROUND

**McMaster University** **Hamilton, ON, Canada**
*Ph.D. candidate, Electrical and Computer Engineering.* *Jan. 2020- Mar. 2024*
Research Interests: Image/Video Restoration & Video Analysis Advisor: Prof. Xiaolin Wu

**Huazhong University of Science and Technology** **Wuhan, China**
*M.A.Sc., Artificial Intelligence and Automation* *Sept. 2017-Jun. 2019*

**Wuhan University of Technology** **Wuhan, China**
*B.Eng., Electronic and Information Engineering* *Sept. 2013-Jun. 2017*

## PROFESSIONAL EXPERIENCE

**Noah's Ark Lab of Huawei, Canada** **Remote, Canada**
***Associate Researcher in Computer Vision and Artificial Intelligence*** *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** **Hamilton, Canada**
***Teaching Assistant in ECE*** *Jan. 2020- Present*

**NetEase Games, AI Lab** **Hangzhou, China**
(***Full-time***) ***Machine Learning Engineer*** *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)** **Hong Kong, China**
(***Full-time***) ***Research Assistant in ME*** *Jan. 2019-July. 2019*

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

**Tencent, Game AI Group** **Shenzhen, China**
(***Internship***) ***Machine Learning Engineer*** *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