Yanhui Guo

McMaster University, – Hamilton, ON, Canada
HomePage gyhui.china@gmail.com Linkedin +1-289-309-8828

EDUCATION BACKGROUND

McMaster University **Hamilton, ON, Canada**
Ph.D. candidate, Electrical and Computer Engineering. *Jan. 2020- Nov. 2023*
Advisor: Prof. Xiaolin Wu

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

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

PROFESSIONAL EXPERIENCE

Noah's Ark Lab of Huawei, Canada **Markham, Toronto, Canada**
(***Part-time***) ***Researcher in Artificial Intelligence*** *Jan. 2022- Present*

- Research about video understanding/action detection (ActivityNet competition).

McMaster University **Hamilton, Canada**
Teaching Assistant in ECE *Jan. 2020- Present*

NetEase Games **Hangzhou, China**
(***Full-time***) ***Artificial Intelligence Engineer of AILab*** *July. 2019-Jan. 2020*

- Neural solver for optical motion capture (MoCap) data.
- Video-based system for automatic generation of 3D digital human animation.

The Hong Kong Polytechnic University (PolyU) **Hong Kong, China**
Research Assistant in ME *Jan. 2019-July. 2019*

- I worked on the robotic navigation algorithms that help the MAV(Micro Aerial Vehicle) complete autonomous flight, avoiding a series of obstacles.

Tencent **Shenzhen, China**
Internship *Apr. 2018-July. 2018*

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

SELECTED PROJECTS

Deep context-aware image compression and reconstruction **Hamilton, Canada**
Mar. 2022- Present

- This is an ongoing research idea. The objective is to reduce the space complexity of compressed image while increasing the decompression quality.

Degradation-Invariant Image Representation Learning **Hamilton, Canada**
July. 2021- March. 2022

One paper was submitted to ECCV2022

- A deep degradation-invariant representation learning method. (Paper Link)

Monitor-Induced Data Collection for Image Restoration **Hamilton, Canada**

July. 2020- Nov. 2021

One paper will appear on TIP and one paper was submitted to ICIP2022

- To collect optimal real-world super-resolution (SR) data for various camera sensors, we propose a novel concept of SR training dataset of monitor-induced dual reference training images (DRTI). DRTI acquisition system can collect sufficient paired data under lab conditions. It makes it easy to deploy specific SR models for any type of digital camera and real scene. (Paper Link)
- We extend the above SR data collection method to deblurring dataset. We propose a real-world deblurring dataset acquisition system (RDAS) and a neural network MEANet to meet the need for real-world deblurring data.(Paper Link)

Solving a Parametric Image Restoration Problem with a Single Model **Hamilton, Canada**

June. 2020- May. 2021

One paper 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 is proposed. It exploits the correlations among three modalities, video, audio and emotion state of the speaker, to remove the video compression artifacts caused by spatial down sampling and quantization. (Paper Link)

Autonomous Landing of a Multirotor Drone on a Moving Platform **Wuhan, Hubei**

Jan. 2017- Jan. 2019

Master's Thesis

- Some demo videos of this project can be found in these links (Video Link1, Video Link2)

PUBLICATIONS

- **Yanhui Guo**, Fangzhou Luo and Xiaolin Wu. "Learning Noise-Resistant Domain Translation for Image Restoration", (Under review, submitted to ECCV,2022)(Paper Link).
- **Yanhui Guo**, Fangzhou Luo and Xiaolin Wu. "Learning Real-World Image Deblurring via a Low-Cost Data Collection System", (Under review, submitted to ICIP,2022)(Paper Link).
- **Yanhui Guo**, Xiao Shu and Xiaolin Wu. "Data Acquisition for Dual-reference Deep Learning of Image Super-Resolution", (To appear on Transactions on Image Processing (TIP))(Paper Link).
- **Yanhui Guo**,Fangzhou Luo, and Xiaolin Wu. "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 Review: CVPR 2022, ICML 2022, NeuIPS 2022, ECCV 2022.
- Coding Skills: Python, Matlab, C++, JavaScript
- Libraries: PyTorch, Tensorflow, Caffe, Opencv, Scikit-learn, Unity3D