Yanhui Guo

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EDUCATION BACKGROUND

McMaster University — **Hamilton, ON, Canada**
Ph.D. candidate, Electrical and Computer Engineering. — *Jan.2020- Present*
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

Wuhan University of Technology — **Wuhan, China**
B.Eng., Electronic and Information Engineering

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. "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