



# Yanhui Guo

 [HomePage](#)

 [gyhui.liam@gmail.com](mailto:gyhui.liam@gmail.com)

 +1-289-309-8828

 [Linkedin](#)

## EDUCATION BACKGROUND

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### McMaster University

*Ph.D. Candidate, Electrical and Computer Engineering*

Research Interests: Image/Video Restoration & Multimedia Processing

**Hamilton, ON, Canada**

*Jan. 2020 - 2024*

Advisor: Prof. Xiaolin Wu

## PROFESSIONAL EXPERIENCE

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### McMaster University

*Teaching Assistant in Electrical and Computer Engineering*

**Hamilton, Canada**

*Jan. 2020- Present*

### Amazon, US

*(Internship) Applied Scientist*

**Seattle, United States**

*June. 2023- Sep. 2023*

- Research on large language model and prompt tuning.
- One paper on continual prompt tuning (Submitted to ICLR 2024)

### Noah's Ark Lab, Canada

*(Part-time Internship) Associate Researcher*

**Markham, Canada**

*Feb. 2022- May. 2023*

- Research on 3D shape reconstruction and video understanding.
- One paper on text-to-driven 3D generation (Accepted by NeurIPS 2023, [Paper Link](#))
- Winning runner-up in the ActivityNet Challenge (CVPR2022 Workshop, [Video Link](#))
- One paper on Temporal Action Localization ([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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### Continual Prompt Tuning for Large Language Models

**Amazon, Seattle, US**

*June. 2023 - Sep. 2023*

- Research on the application of prompt tuning for LLMs. We develop a queue-based continual prompt tuning method to enable life-long learning. One paper was submitted to ICLR 2024.

### Degradation-Invariant Image Representation Learning

**Hamilton, Canada**

*July. 2021 - Sep. 2023*

- 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](#))

## **PUBLICATIONS**

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- **Yanhui Guo**, Shaoyuan Xu, Jinmiao Fu, Bryan Wang. "Q-Tuning: Continual Queue-based Prompt Tuning for Language Models", (Under Review, ICLR 2024)
- **Yanhui Guo**, Xinxin Zuo, Peng Dai, Juwei Lu, Xiaolin Wu. "Decorate3D: Text-Driven High-Quality Texture Generation for Mesh Decoration in the Wild", (NeurIPS, 2023) ([Project](#), [Paper Link](#)).
- Fangzhou Luo, **Yanhui Guo**, and Xiaolin Wu. "AND: Adversarial Neural Degradation for Learning Blind Image Super-Resolution", (NeurIPS, 2023) ([Paper Link](#)).
- **Yanhui Guo**, Fangzhou Luo, Shaoyuan Xu. "Self-Supervised Face Image Restoration with a One-Shot Reference", (Under Review, ICASSP 2024) ([Paper Link](#)).
- **Yanhui Guo**, Fangzhou Luo, Xiaolin Wu. "Learning Noise-Resistant Image Representation by Aligning Clean and Noisy Domains", (Under Review) ([Paper Link](#)).
- **Yanhui Guo**, Fangzhou Luo and Xiaolin Wu. "Perception-Critical Image Compression by Deep Supplementary Sketching", (Under Review, WACV 2024) ([Paper Link](#)).
- **Yanhui Guo**, Peng Dai, Juwei Lu and Li Cheng. "Refining Implicit Neural Action Field for Temporal Action Localization", (CVPR Workshop, 2022) ([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](#)).
- 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 Soft-decoding of Very Low Bit-rate Face Videos", 2020 ACM International Conference on Multimedia (ACM MM, 2020) ([Paper Link](#)).

## Others

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- Journal/Conference Reviewer: CVPR 2022, ICML 2022, NeuIPS 2022, ECCV 2022, CVPR 2023, WACV 2024.
- Coding Skills: Python, Matlab, C++, JavaScript, PyTorch, Tensorflow, Git, Opencv, Unity3D