



# Yanhui Guo

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## EDUCATION BACKGROUND

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(Ph.D.) McMaster University

Hamilton, ON, Canada

*Image/Video Restoration & 2D/3D Computer Vision & Generative AI*

(M.S.) Huazhong University of Science and Technology

Wuhan, China

*Artificial Intelligence and Automation*

**7+ Years of Experience in Machine Learning & 2D/3D Computer Vision**

## PROFESSIONAL EXPERIENCE

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**3+ Years of Industry Work Experience in Machine Learning, DL, NLP, and Computer Vision**

Noah's Ark Lab, Canada

Markham, Canada

*(Full-time) Researcher*

*Sep. 2023- Present*

- Research on 4D dynamic scene generation and editing.

Amazon, US

Seattle, United States

*(Internship) Applied Scientist*

*June. 2023- Sep. 2023*

- Research on large language model and prompt tuning.
- One paper on continual prompt tuning (Submitted to ACL 2024).
- Developing attribute extraction models for product recommendation.

Noah's Ark Lab, Canada

Markham, Canada

*(Full-time) Researcher*

*Feb. 2022- June. 2023*

- Research on 3D shape reconstruction and video understanding.
- One paper on text-to-driven 3D generation (NeurIPS 2023, [Paper Link](#))
- Winning runner-up in the ActivityNet Challenge (CVPR2022 Workshop, [Video Link](#))
- Developing and delivering temporal action localization models ([Paper Link](#))

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 data cleaning and generation.

The Hong Kong Polytechnic University

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

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**Continual Prompt Tuning for Large Language Models**

*Amazon, Seattle, US*

- Research on the application of prompt tuning for LLMs. We developed a queue-based continual prompt tuning method and attribute extraction models for product recommendation.

#### **Text-driven Real-world Mesh Retexturing**

*Noah's Ark Lab, Canada*

- A flexible and easy-to-use text-driven tool to create and edit 3D objects from real-world images. (Two US patents, NeurIPS 2023)

#### **Adversarial Neural Degradation for Blind Super-Resolution**

*McMaster University*

- We proposed a novel adversarial neural degradation model to train a super-resolution model for improving restoration performance on real-world images. (NeurIPS 2023).

#### **Temporal Action Localization in Untrimmed Videos**

*Noah's Ark Lab, Canada*

- A flexible and easy-to-use text-driven tool to create and edit 3D objects from real-world images. (One US patent, winning second prize in CVPRW 2022)

#### **Degradation-Invariant Image Representation Learning**

*McMaster University*

- A deep degradation-independent representation learning method for robust image restoration.

#### **Monitor-Induced Data Collection for Image Restoration**

*McMaster University*

- We proposed an automatic system for real-world super-resolution data collection (TIP 2022).

#### **Solving a Parametric Image Restoration Problem**

*McMaster University*

- We proposed a novel system called functional neural network (FuncNet) to solve a parametric image restoration problem with a single model. (NeurIPS 2021)

## **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, **ACL 2024**) ([Paper Link](#))
- **Yanhui Guo**, Fangzhou Luo, Xiaolin Wu. "Learning Degradation Independent Representations for Camera ISP Pipelines", (Under Review, **CVPR2024**) ([Paper Link](#)).
- **Yanhui Guo**, Xinxin Zuo, Peng Dai, and et al., "Decorate3D: Text-Driven High-Quality Texture Generation for Mesh Decoration in the Wild", (Two US patents, **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", (**ICASSP 2024**) ([Paper Link](#)).
- **Yanhui Guo**, Peng Dai, Juwei Lu and Li Cheng. "Refining Implicit Neural Action Field for Temporal Action Localization", (One US patent, **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", (**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, CVPR 2024.
- Coding Skills: Python, Matlab, C++, JavaScript, PyTorch, Tensorflow, Git, Opencv, Unity3D