Yanhui Guo

HomePage | gyhui.liam@gmail.com | +1-289-309-8828 | Linkedin

EDUCATION BACKGROUND

(Ph.D.) McMaster University **Hamilton, ON, Canada**
Computer Science, Image/Video Restoration, 2D/3D Computer Vision, LLM and Generative AI

(B.Sc./M.Sc.) Huazhong University of Science and Technology **Wuhan, China**
Artificial Intelligence and Automation

My research interests lie in computer vision and machine learning, especially in image restoration, video understanding, and 2D/3D content generation. Since joining the industry, I have been working on search and recommendation systems, while exploring creative generation with images and videos.

PROFESSIONAL EXPERIENCE

7+ YOE in industy w/ focus on Deep Learning, Computer Vision, Search, and Recommendation

Amazon **Seattle, United States**
Applied Scientist *May. 2024 - Present*

- Built ranking models and conducted A/B experiments to enhance the search experience for global Amazon customers. Developed recommendation models to power various Amazon pages.
- Led a 4-member team to improve relevance rates in Amazon Search using LLMs, reducing irrelevant results by xx bps and boosting operational revenue by xx%.
- Built LLM-driven multilingual and multimodal substitute recommendation models for Amazon's global stores, increasing product coverage by xx% and operational revenue by xx%.
- Researched and developed multi-task personalization models in search to support diverse customer use cases, increasing conversion rate by xx% while reducing model maintenance costs.
- Working on Agentic LLMs to develop SOP tools for labeling, auditing, and process streamlining.

Noah's Ark Lab (AI Lab), Canada **Toronto, Canada**
Senior Researcher *Sep. 2023 - April. 2024*

- Led a team to develop an image-to-3D scene product, boosting customer engagement by xx%.
- Conducted research in AIGC with a focus on text-to-3D content generation.
- Published 3 US patents and papers (e.g. NeurIPS) on content understanding and 3D generation.

Amazon **Seattle, United States**
Applied Scientist *June. 2023 - Sep. 2023*

- Researched prompt tuning for large language models, with results published at NAACL. Developed attribute extraction models to improve valid product's coverage across large-scale catalogs.

Noah's Ark Lab (AI Lab), Canada **Toronto, Canada**
Researcher *Feb. 2022 - June. 2023*

- Conducted research on video understanding and video search, focusing on large-scale representation learning and retrieval efficiency.
- Led a team to win the runner-up in the CVPR 2022 ActivityNet Challenge.

NetEase Games, AI Lab **Hangzhou, China**
Artificial Intelligence Engineer *July. 2019 - Jan. 2020*

- Developed AI technologies in the gaming industry.

The Hong Kong Polytechnic University **Hong Kong, China**
Research Staff *Jan. 2019 - July. 2019*

- Developed vision-based navigation algorithms for flying robotics.

Tencent, Game AI Group **Shenzhen, China**
Machine Learning Engineer *Apr. 2018 - July. 2018*

- Develop a Game AI system for an MOBA game (Honor of Kings)

PUBLICATIONS

Natural Language Processing

[1] **Yanhui Guo**, Shaoyuan Xu, Jinmiao Fu, Bryan Wang. "Q-Tuning: Continual Queue-based Prompt Tuning for Language Models", (**NAACL 2024**)(Paper Link).

Search and Recommendation

[2] Dazhou Yu, **Yanhui Guo**, et al., "Satisfying Complex User Needs: M^3 Agent for Conversational Multi-Item Recommendation" (**Under Review, ICLR 2026**).

[3] Junting Wang, ... **Yanhui Guo**, Multi-modal Relational Item Representation Learning for Substitutable and Complementary Recommendation (**Amazon Machine Learning Conference 2025**)

[4] Mingdai, Fan Yang, **Yanhui Guo**, and et al., "PCL: Prompt-based Continual Learning for User Modeling in Recommender Systems", (**WWW 2025**)(Paper Link).

Computer Vision

[5] **Yanhui Guo**, Chenghuan Guo, Yan Gao, Yi Sun, "Learning by Taking Notes: Memory-Guided Continual Learning for Generative Multimodal Models" (**ICCV 2025 MMFM4**)

[6] Binh M Le, ... **Yanhui Guo** and et al., "QID: Efficient query-informed ViTs in data-scarce regimes for OCR-free visual document understanding" (**CVPR 2025 MULA**)

[7] **Yanhui Guo**, **Second Prize** in Challenge on Image Super-Resolution ($\times 4$) **(CVPR NTIRE 2025)**.

[8] **Yanhui Guo**, Fangzhou Luo, Xiaolin Wu. " Learning Degradation Independent Representations for Camera ISP Pipelines", (**CVPR 2024**)(Paper Link).

[9] Fangzhou Luo, **Yanhui Guo**, and Xiaolin Wu. "AND: Adversarial Neural Degradation for Learning Blind Image Super-Resolution", (**NeurIPS 2023**)(Paper Link).

[10] **Yanhui Guo**, Fangzhou Luo, Shaoyuan Xu. "Self-Supervised Face Image Restoration with a One-Shot Reference", (**ICASSP 2024, Oral**)(Paper Link).

[11] **Yanhui Guo**, Peng Dai, Juwei Lu and Li Cheng. "Refining Implicit Neural Action Field for Temporal Action Localization", (**A US patent**, **CVPR Workshop 2022**)(Paper Link).

[12] **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).

[13] Fangzhou Luo, **Yanhui Guo** and Xiaolin Wu. "Functional Neural Networks for Parametric Image Restoration Problems", (**NeurIPS 2021**)(Paper Link).

[14] **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).

Generative AI

[15] Hengkang Wang, ... **Yanhui Guo**, "Temporal-Consistent Video Restoration with Pre-trained Diffusion Models" (**Under Review, AAAI 2026**).

[16] Lingjing Kong,...**Yanhui Guo**, "Learning to Compose the Unseen Combinations: Compositional Generalization through Hierarchical Concept Models" (**AMLC 2025**)

[17] **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).

Others

- Journal/Conference Reviewer: Amazon AMLC, CVPR 2022, ICML 2022, NeurIPS 2022, ECCV 2022/2024, CVPR 2023, ICME 2024, WACV 2024/2025, CVPR 2024/2025/2026, NeurIPS 2025, TIP.