Yunxiang Zhang

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Research Interests

My current research revolves around virtual/augmented/mixed reality, human-computer interaction, perceptual computer graphics, and machine learning, with a particular focus on AI-powered multimodal interaction experiences and human-AI co-creation systems. More broadly, I enjoy combining knowledge and insights from human perception and human-computer interaction research with machine learning tools to solve challenging real-world problems.

Education

New York University — New York City, USA
Doctor of Philosophy in Computer Science — *Sep 2022 – Dec 2025 (expected)*
Advisor: Prof. Qi Sun

The Chinese University of Hong Kong — Hong Kong SAR, China
Master of Philosophy in Information Engineering — *Aug 2020 – Aug 2022*
Advisor: Prof. Dahua Lin

Shanghai Jiao Tong University — Shanghai, China
Master of Engineering in Electronics and Communication Engineering — *Sep 2017 – Mar 2020*
Advisor: Prof. Bingbing Ni

École Polytechnique — Palaiseau, France
Diplôme d'Ingénieur in Computer Science (double-degree program between SJTU and EP) — *Apr 2016 – Aug 2018*

Shanghai Jiao Tong University — Shanghai, China
Bachelor of Engineering in Information Engineering — *Sep 2013 – Aug 2017*

Work Experience

Research Intern, Intel Graphics Research — Bellevue, USA
Mentors: Dr. Alexandr Kuznetsov and Dr. Akshay Jindal — *May 2023 - Aug 2023*

Research Intern, Vector Institute — Toronto, Canada
Mentor: Prof. Nicolas Papernot — *Mar 2020 – Jun 2020*

Research Intern, LTCI Télécom Paris — Paris, France
Mentors: Prof. Samy Blusseau, Prof. Santiago Velasco-Forero, Prof. Isabelle Bloch, and Prof. Jesús Angulo — *Apr 2018 - Aug 2018*

Publications

- **GazeFusion: Saliency-guided Image Generation**
  ACM Transactions on Applied Perception (ACM SAP 2024) Paper | Video | Code
  Best Paper Award Best Presentation Award
  Yunxiang Zhang, Nan Wu, Connor Lin, Gordon Wetzstein, Qi Sun
- **Measuring and Predicting Multisensory Reaction Latency: A Probabilistic Model for Visual-Auditory Integration**
  IEEE Transactions on Visualization and Computer Graphics (IEEE ISMAR 2024) Paper | Video
  Xi Peng, **Yunxiang Zhang**, Daniel Jiménez Navarro, Ana Serrano, Karol Myszkowski, Qi Sun
- **May the Force Be with You: Dexterous Finger Force-Aware VR Interface**
  IEEE International Symposium on Mixed and Augmented Reality (IEEE ISMAR 2024) Paper | Code
  Fengze Zhang*, **Yunxiang Zhang***, Xi Peng, Sky Achitoff, Paul M. Torrens, Qi Sun
- **Toward User-Aware Interactive Virtual Agents: Generative Multi-Modal Avatar Behaviors in VR**
  IEEE International Symposium on Mixed and Augmented Reality (IEEE ISMAR 2024) Paper
  Bhasura Gunawardhana, **Yunxiang Zhang**, Qi Sun, Zhigang Deng
- **Accelerating Saccadic Response through Spatial and Temporal Cross-Modal Misalignments**
  ACM SIGGRAPH 2024 Paper
  Daniel Jiménez Navarro, Xi Peng, **Yunxiang Zhang**, Karol Myszkowski, Hans-Peter Seidel, Qi Sun, Ana Serrano
- **Mixed Reality Interface for Whole-Body Balancing and Manipulation of Humanoid Robot**
  International Conference on Ubiquitous Robots (UR 2024) Paper
  Hyunjong Song, Gabriel Bronfman, **Yunxiang Zhang**, Qi Sun, Joo H. Kim

- **Toward Optimized VR/AR Ergonomics: Modeling and Predicting User Neck Muscle Contraction**
  ACM SIGGRAPH 2023 Paper | Video | Code
  Yunxiang Zhang, Kenneth Chen, Qi Sun
- **Force-Aware Interface via Electromyography for Natural VR/AR Interaction**
  ACM Transactions on Graphics (ACM SIGGRAPH Asia 2022) Paper | Video | Code
  Yunxiang Zhang, Benjamin Liang, Boyuan Chen, Paul M. Torrens, S. Farokh Atashzar, Dahua Lin, Qi Sun
- **Exploiting Channel Similarity for Network Pruning**
  IEEE Transactions on Circuits and Systems for Video Technology (IEEE TCSVT 2023) Paper
  Chenglong Zhao, **Yunxiang Zhang**, Bingbing Ni
- **CaPC Learning: Confidential and Private Collaborative Learning**
  International Conference on Learning Representations (ICLR 2021) Paper | Video | Code
  Christopher A. Choquette-Choo*, Natalie Dullerud*, Adam Dziedzic*, **Yunxiang Zhang***, Somesh Jha, Nicolas Papernot, Xiao Wang
- **Max-plus Operators Applied to Filter Selection and Model Pruning in Neural Networks**
  International Symposium on Mathematical Morphology and Its Application to Signal and Image Processing (ISMM 2019) Paper | Code
  Yunxiang Zhang, Samy Blusseau, Santiago Velasco-Forero, Isabelle Bloch, Jesus Angulo

* Equal contributions, authors ordered alphabetically

Preprints

- **Image-GS: Content-Adaptive Image Representation via 2D Gaussians**
  arXiv preprint 2024 Paper
  Yunxiang Zhang, Alexandr Kuznetsov, Akshay Jindal, Kenneth Chen, Anton Sochenov, Anton Kaplanyan, Qi Sun
- **Toward Ubiquitous 3D Object Digitization: A Wearable Computing Framework for Non-Invasive Physical Property Acquisition**
  arXiv preprint 2024 Paper
  Yunxiang Zhang, Xin Sun, Dengfeng Li, Xinge Yu, Qi Sun

Awards

ACM Symposium on Applied Perception (ACM SAP 2024)	Best Paper Award, Best Presentation Award (2024)
New York University	Deborah Rosenthal MD Award (2024)
New York University	SoE Fellowship (2022 – 2023)
The Chinese University of Hong Kong	Postgraduate Scholarship (2020 – 2022)
Shanghai Jiao Tong University	SPEIT Academic Excellence Scholarship (2015 – 2016)
Shanghai Jiao Tong University	Ardian Scholarship (2014 – 2015)

Academic Services

Conference Reviewer: SIGGRAPH, SIGGRAPH Asia, TVCG, AAAI, IEEE VR, ISMAR, PG, JPI

Teaching Experience

Teaching Assistant, Virtual and Augmented Reality (CS-GY 9223), New York University	2022 Fall
Teaching Assistant, Final Year Project (IERG 4998/4999), The Chinese University of Hong Kong	2020 – 2022

Skills

- **Programming**: Python, C/C++, C#, Java
- **Tools**: PyTorch, TensorFlow, CUDA, OpenGL
- **Software**: Blender, Unity, Unreal Engine, MeshLab
- **Language**: Mandarin, English, French