Changyang Li

changyangli10@gmail.com | changyangli.github.io | Google Scholar

Education

George Mason University *Aug 2019 - June 2024*
PhD in Computer Science
Advisor: Lap-Fai (Craig) Yu

University of Virginia *Aug 2017 - May 2019*
MS in Computer Science

Beijing Institute of Technology *Aug 2013 - June 2017*
BS in Computer Science

Experience

GoerTek Alpha Labs *Feb 2025 - Current*
Research Scientist
Scene perception, generation and reconstruction, human-scene interaction.

Meta *June 2024 - Jan 2025*
Computer Vision Engineer
Parametric human body/hand model, human-object interaction.

Design Computing and Extended Reality (DCXR) Group *Aug 2019 - June 2024*
Graduate Research Assistant *Mentor: Lap-Fai (Craig) Yu*
Interactive XR system, human-scene interaction, human-centered scene perception.

Center for Vision, Cognition, Learning, and Autonomy *May 2018 - Aug 2018*
Research Intern *Mentor: Song-Chun Zhu*

Selected Projects

Scene Perception and Visual Localization *GoerTek Alpha Labs*

- Developed a scene understanding pipeline using object detection, semantic segmentation, and scene graph modeling techniques for complex indoor environments.
- Presented a visual localization system by fusing semantic features with geometric constraints.

Scene Reconstruction and Content Generation *GoerTek Alpha Labs*

- Built a 3D reconstruction framework with extended features including 3D consistent instance segmentation, and 3D/4D Gaussian Splatting representations.
- Utilized a Flow Matching based generative model to synthesize dynamic 3D content, automatically populating reconstructed environments with semantically consistent assets.

Synthetic Human-Object Interaction *Meta*

- Designed a parametric motion generation system, synthesizing physically plausible human-scene interactions (e.g., sitting, grasping) based on spatial constraints.
- Optimized large-scale human motion datasets to train interaction policies, enabling virtual avatars to adaptively interact with diverse 3D objects.

Context-Aware XR System *George Mason University*

- Built end-to-end adaptive XR systems that dynamically optimizes virtual content placement based on scene semantics and users' inputs and interactions.
- Integrated vision-language models and scene segmentation and scene graph modeling methods, enabling virtual characters to navigate and interact intelligently with physical environments in MR settings.

Selected Publications

Crafting Dynamic Virtual Activities with Advanced Multimodal Models
Changyang Li, Qingan Yan, Minyoung Kim, Zhan Li, Yi Xu, Lap-Fai Yu
2025 IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2025

Synthesizing User-Centered Flying Creature Animation Paths for Outdoor Augmented Reality Experiences
Minyoung Kim, Rawan Alghofaili, **Changyang Li**, Lap-Fai Yu
SIGGRAPH 2024 Conference Papers

Generating Activity Snippets by Learning Human-Scene Interactions
Changyang Li, Lap-Fai Yu
ACM Transactions on Graphics (Proceeding of SIGGRAPH 2023)

Location-Aware Adaptation of Augmented Reality Narratives
Wanwan Li*, **Changyang Li***, Minyoung Kim, Haikun Huang, Lap-Fai Yu
Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems

Optimizing Product Placement for Virtual Stores
Wei Liang, Luhui Wang, Xinzhe Yu, **Changyang Li**, Rawan Alghofaili, Yining Lang, Lap-Fai Yu
2023 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)

Interactive Augmented Reality Storytelling Guided by Scene Semantics
Changyang Li, Wanwan Li, Haikun Huang, Lap-Fai Yu
ACM Transactions on Graphics (Proceeding of SIGGRAPH 2022)

Synthesizing Scene-Aware Virtual Reality Teleport Graphs
Changyang Li, Haikun Huang, Jyh-Ming Lien, Lap-Fai Yu
ACM Transactions on Graphics (Proceeding of SIGGRAPH Asia 2021)

Learning Virtual Grasp with Failed Demonstrations via Bayesian Inverse Reinforcement Learning
Xu Xie*, **Changyang Li***, Chi Zhang, Yixin Zhu, Song-Chun Zhu
2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2019

Earthquake Safety Training through Virtual Drills
Changyang Li, Wei Liang, Chris Quigley, Yibiao Zhao, Lap-Fai Yu
IEEE Transactions on Visualization and Computer Graphics (Special Issue on IEEE VR 2017)

Patents

Systems and methods for facilitating navigation in space
Changyang Li, Lap Fai Yu
US Patent 12,254,574, 2025

Academic Services and Activities

Program Committee

AAAI, IEEE VR, IEEE ISMAR

Paper Reviewer

- **Conference:** SIGGRAPH, SIGGRAPH Asia, CHI, UIST, Pacific Graphics, IEEE VR, IROS
- **Journal:** ACM Transactions on Graphics, IEEE TVCG, Computer Graphics Forum, IEEE T-RO

Invited Talks

2022 IEEE Metaverse Seminar, 2024 Autodesk ‘Research Connections’ Talk Series