Liuchuan **Yu** (He/Him)

CS PHD STUDENT | DEDICATED TO AI + XR

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"Stand Out Fit In"

Summary

Currently pursuing a Ph.D. in Computer Science at George Mason University, under the guidance of Professor Craig Yu. Conducting research on leveraging Artificial Intelligence (AI) and Extended Reality (XR) technologies, including Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR), to enhance human performance. Skilled in Python, Unity, Meta Quest 2/Pro, Microsoft HoloLens 2, and networked multiplayer development. Hold a bachelor's degree in Remote Sensing, a master's degree in Software Engineering, and a master's degree in Computer Science, with over 5 years of industry experience as a software engineer. Passionate about driving innovation at the intersection of XR and AI to create immersive and transformative experiences.

Education

GMU (George Mason University)   *Fairfax, VA, USA*

PH.D. IN COMPUTER SCIENCE   *Aug. 2021 - Present*

- Research interests: **AI-assisted XR applications for human performance enhancement**
- **Design Computing and Extended Reality (DCXR)** group supervised by **Professor Craig Yu**

GMU (George Mason University)   *Fairfax, VA, USA*

M.S. IN COMPUTER SCIENCE   *Aug. 2021 - May. 2024*

- Distinguished Academic Achievement Award

BJTU (Beijing Jiaotong University)   *Haidian, Beijing, China*

M.S. IN SOFTWARE ENGINEERING   *Sep. 2017 - Jun. 2020*

- Thesis: Research on Domain Adaptation and Task Porting Methods for Transfer Learning
- Code: Transfer Learning Baseline Toolbox Based on Object Oriented Programming
- Code: Visualize Transfer Learning Datasets

SDUST (Shandong University of Science and Technology)   *Qingdao, Shandong, China*

B.S. IN REMOTE SENSING SCIENCE AND TECHNOLOGY   *Sep. 2011 - Jun. 2015*

- Thesis: Design and Implementation of Photogrammetric Fundamental Algorithms Based on Qt
- Code: YZCG - Photogrammetry Data Processing System

Honors & Awards

2025 Jan	**LA Emergency Response Prize**, Memoverse	*MIT Reality Hack 2025*
2025 Jan	**XR Design Challenge 2024 Finalist**, Float Mind	*Immersive Insiders w/ Meta etc.*
2025 Jan	**XR Design Challenge 2024 Finalist**, Meal Master	*Immersive Insiders w/ Meta etc.*
2024 Dec	**Panel Member**, AR/VR User Research Panel	*Meta*
2024 Oct	🏆**Best Real-World Game Prize**, BloomCraft: Garden Guardians	*Niantic Create & Play Challenge*
2024 Fall	**CSCI 6907-83 Guest Speaker & Project Mentor**, Advanced Topics in Augmented Reality (AR)	*GWU*
2024 Jul	**Academic Partner**, Project Aria Research Partnership Program	*Meta*
2024 Jul	**VR Work Featured on Podcast**, VR Simulations and ADHD in Construction	*Peggy Smedley Show*
2024 Jun	**ACM Professional Membership**, EICS 2024 Reviewing Appreciation	*ACM*
2024 May	**Distinguished Academic Achievement Award**, Computer Science Department	*GMU*
2024 Apr	**2024 Summer GRA Fellowship**, Center for Advancing Human-Machine Partnership (CAHMP)	*GMU*

Publication

PAPER

Col-Con: A Reconfigurable Virtual Reality Simulation Platform for Exploring Collaborative Behaviors in Construction [Under Review] [Video] [Code]

Virtual Reality

LIUCHUAN YU; CHING-YU CHENG; WILLIAM F RANC; JOSHUA DOW; MICHAEL SZILAGYI; HAIKUN HUANG; SUNGSOO RAY HONG; BEHZAD ESMAEILI; LAP-FAI YU

Enriching Physical-Virtual Interaction in AR Gaming by Tracking Identical Real Objects [Under Review] [Video] [Code]

IEEE Transactions on Games

LIUCHUAN YU; CHING-I HUANG; HSUEH-CHENG WANG; LAP-FAI YU

HoloCook: A Real-Time Remote Mixed Reality Cooking Tutoring System [HCII 2024]

Washington DC, USA

LIUCHUAN YU; BO HAN; SONGQING CHEN; LAP-FAI YU

Jul. 2024

HoloAAC: A Mixed Reality AAC Application for People with Expressive Language Difficulties [HCII 2024]

Washington DC, USA

LIUCHUAN YU; HUINING FENG; RAWAN ALGHOFAILI; BOYOUNG BYUN; TIFFANY O'NEAL; SWATI RAMPALLI; YOOSUN CHUNG; VIVIAN GENARO MOTTI; LAP-FAI YU

Jul. 2024

Establishing Design Computing and Extended Reality Facilities for Remote Virtual Reality Training [IEEEVR 2023-VRW]

Shanghai, China

LAP-FAI YU; CHANGYANG LI; YONGQI ZHANG; RAWAN ALGHOFAILI; HAIKUN HUANG; LIUCHUAN YU; HUIMIN LIU; MINSOO CHOI; BRENDA BANNAN; CHRISTOS MOUSAS

Mar. 2023

Synthesizing Shared Space Virtual Reality Fire Evacuation Training Drills [ISMAR 2022-Adjunct]

Singapore, Singapore

HUIMIN LIU; MINSOO CHOI; LIUCHUAN YU; ALEXANDROS KOILIAS; LAP-FAI YU; CHRISTOS MOUSAS

Oct. 2022

POSTER

Enriching Physical-Virtual Interaction in AR Gaming by Tracking Identical Real Objects [MIG 2024]

Arlington, VA, USA

LIUCHUAN YU; CHING-I HUANG; HSUEH-CHENG WANG; LAP-FAI YU

Nov, 2024

Predicting Users' Difficulty Perception in a VR Platformer Game [MIG 2024]

Arlington, VA, USA

ERDEM MURAT; LIUCHUAN YU; SIRAJ SABAH; HAIKUN HUANG; LAP-FAI YU

Nov, 2024

Reviewing

2024	**Reviewer**, PRESENCE: Virtual and Augmented Reality
2024	**Reviewer**, CHI 2025 Papers
2024	**Reviewer**, IEEE VR 2025 Papers
2024	**Reviewer**, VRST 2024 Papers
2024	**Reviewer**, ISS 2024 Papers
2024	**Reviewer**, AutomotiveUI 2024 Works in Progress
2024	**Reviewer**, ISMAR 2024 Posters
2024	**Reviewer**, ISMAR 2024 Conference Papers
2024	**Reviewer**, ISMAR 2024 Journal Papers
2024	**Reviewer**, EICS 2024 Demos and Posters
2023	**Reviewer**, IEEE VR 2023 Workshop: Workshop: 3D Content Creation for Simulated Training in XR
2022	**Reviewer**, IEEE VR 2022 Workshop: 3D Content Creation for Sim. Training (TrainingXR)

Graduate Teaching/Research Assistant

Graduate Research Assistant

2024   **Summer,** Predicting Team Cohesion in Collaborative VR Construction Scenarios

2023   **Summer,** Multiplayer VR Construction Training Platform Using Quest Pro

2022   **Summer,** Supporting Dynamic Scene on AR Using HoloLens 2

Graduate Teaching Assistant

2025   **Spring,** CS452 Virtual Reality

2024   **Fall,** CS551 Computer Graphics

2024   **Spring,** CS310 Data Structures

2023   **Fall,** CS452 Virtual Reality

2023   **Spring,** CS310 Data Structures

2022   **Fall,** CS310 Data Structures

2022   **Spring,** CS211 Object Oriented Programming

2021   **Fall,** CS211 Object Oriented Programming

Volunteering

2022 -   **President,** Computer Science Graduate Student Association (CSGSA)   *GMU*

2021   **Volunteer,** Gradstravaganza Picnic   *GMU*

Work Experience

JingHang Co., Ltd.   *Beijing, China*
Python Software Engineer   *Mar. 2021 - Apr. 2021*

- Developed a standardized storage format for English examination data, including A-Level, IELTS, and TOEFL.
- Performed extraction, transformation, and loading (ETL) of unstructured data into a unified, structured format.
- Designed and implemented a web interface for seamless integration and usage by other departments.

KoudaiCaifu Co., Ltd.   *Beijing, China*
Finance Development Engineer   *Aug. 2020 - Mar. 2021*

- Managed and maintained the Intelligent Investment Consultant System, ensuring data stream accuracy and reliability.
- Identified and resolved bugs in the company's online systems and applications, ensuring smooth operations.
- Enhanced departmental efficiency by introducing innovative utilities and engineering methodologies.

LinkDoc Co., Ltd.   *Beijing, China*
Python System R&D Engineer   *Aug. 2018 - Dec. 2019*

- Led the development, optimization, and maintenance of the Clinical Information Extraction System.
- Enhanced structural accuracy across multiple modules of electronic medical records (EMRs).
- Designed and maintained a PyCharm IDE plugin to support syntax highlighting, auto-completion, and function navigation for a Domain-Specific Language (DSL).

EmoKit Co., Ltd.   *Beijing, China*
Machine Learning Engineer   *Feb. 2018 - Jul. 2018*

- Led research and development of machine learning algorithms to advance project outcomes.
- Applied machine learning techniques to support anti-fraud initiatives in the financial industry.
- Integrated advanced algorithms to drive project progress and efficiency.
- Established and introduced a centralized background algorithm center to streamline development and deployment.

WaterTek Corp.   *Beijing, China*
Software Engineer   *Jul. 2015 - Feb. 2018*

- Conducted research on the organization and storage of spatio-temporal big data to improve system efficiency.
- Developed, packaged, and maintained core algorithms using C/C++ for robust performance.
- Designed and implemented an indoor navigation application for the iOS platform.

Esri China Co., Ltd.   *Beijing, China*
Technology Engineer Intern   *Aug. 2014 - Feb. 2015*

- Developed prototypes using C#, C++, Java, HTML, and JavaScript on the ArcGIS platform to meet client requirements.
- Designed database structures and authored SQL queries to support application functionality.
- Collaborated with sales teams to present technical details and prepare user manuals for company products.

Extracurricular Activity

Memoverse (🏆 LA Emergency Response Prize)   *MIT Reality Hack 2025*
DEVELOPER
- A mobile AR experience allows users to explore 3D scans of sites before the fire and share memories, preserving the essence of lost spaces and offering comfort to those affected.
- **Video** | **8th Wall**
- Team members: **Zihan Li**, **Yan Zeng**, **Tingting Luo**, and **Ernest Choi**.

Float Mind (**Finalist**)   *XR Design Challenge 2024*
DEVELOPER
- Float Mind is an AI-powered MR gamified meditation app designed for stress relief and immersive relaxation.
- **Short Video** | **Long Video** | **Walk-Through Video on Windows** | **Windows Exectable** | **Github**
- Team members: **Zihan Li**, **Yan Zeng**, **Tingting Luo**, and **Shuqi Liao**.

Meal Master (**Finalist**)   *XR Design Challenge 2024*
DEVELOPER
- The Meal Master is an innovative MR cooking assistant designed to help users make informed, healthy meal choices while simplifying the cooking process.
- **Video**
- Team members: **Yvie Zhang**

BloomCraft: Garden Guardians (🏆 Best Real-Word Game Prize)   *Niantic Studio*
CORE DEVELOPER
- Discover, plant, and protect a sunflower in our game! Help from Red Bird, water from clouds, and guard against bugs in this interactive adventure.
- **Video** | **8th Wall**
- Team members: **Yvie Zhang** [Artistic Designer], **Manuel Rebol** [User Experience], and **Hurriyet Ok** [Project Manager].

OmniCounter (iOS App)   *Objective-C/Swift*
DEVELOPER
- OmniCounter is a Fully Functional Calculator that supports basic, scientific, trigonometry, algebra, calculus, combinatorics, datetime, economics, geometry, matrix, vector, number theory, statistics, and so on.

conda-env-export (PYPI Package)   *Python*
DEVELOPER
- It's a useful PyPI package that aims to export conda env dependencies and pip requirements to ONE yml file.

Watermark Terminator (PDF Utility)   *Python*
DEVELOPER
- It's a simple but powerful application to remove text and/or image watermarks in PDF files and output PDF and/or DOCX files.

3to1 (Utility)   *Python*
DEVELOPER
- It's designed to merge 3 kinds of online course resources (*.swf, *.grf, *.xml) into 1 video.

Skills

XR Development	Unity, Meta XR SDKs, Mixed Reality Toolkit (MRTK), Quest 2, Quest Pro, HoloLens 2
Programming	C#, Python, C++, Java, C, SQL, LaTeX
Multimedia	Photoshop, Illustrator, Premiere Pro
3D Related	3ds Max, Blender, 3D Scanning, 3D Printing, Laser Cutting
Languages	English, Mandarian