

XUANHUI XU

University College Dublin,
School of Computer Science,
PhD Researcher

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EDUCATION

October 2019 - Present
University College Dublin, Ireland
Ph.D. in Computer Science

September 2018 – September 2019
University College Dublin, Ireland
Master's degree in Computer Science
Honours: 2H1 (GPA: 3.33/4.2)

September 2017 – July 2018
University College Dublin, Ireland
Bachelor's degree in Computer Science
Honours: 2H1 (GPA: 3.34/4.2)

September 2014 – July 2017
Beijing University of Technology, China
Bachelor's degree in Computer Science
Honours: 2H1 (GPA: 3.49/4.2)

INTERNSHIP

June 2017 – August 2017
MengStone Technology, China
Unity game developer

COMPUTER LANGUAGE

JAVA ●●●●○
C# ●●●●○
Python ●●●●○

LANGUAGE

Mandarin ●●●●●
English ●●●●○

OTHER SKILLS

Unity 3D ●●●●●
Photoshop ●●●●○
Premiere Pro ●●●○○
Blender ●●●○○

Xuanhui is a Ph.D. Student at University College Dublin, School of Computer Science. His research focuses on Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) application on teaching routine and summative assessment method in Anatomy and Radiology Veterinary Education.

RESEARCH & DEVELOPMENT EXPERIENCE

December 2022 – Present

Co-located MR Radiation Safety and Equine Technique Teaching Tool

Keywords: *Unity, Android platform - Meta Quest*

- Created a virtual environment for the lecturer to teach multiple students radiographic techniques using a virtual equipment and horse in the real Equine room and in real-time.
- Enabled passthrough front camera on Meta Quests for an MR experience that enhanced co-presence of virtual objects and users.
- Applied a simple synchronization method using hand tracking for multi users' co-location.

December 2017 – June 2021 (Several projects)

VR Canine Anatomy Teaching and Assessment Tools

Keywords: *Unity, Android platform - Meta Quest, Windows platform - HTC VIVE*

- Designed and implemented several apps to both Android and Windows platforms using Unity.
- Extracted the 3D model from medical data and decimated 80% of faces for mobile device using Blender; optimised the system with Universal Render Pipeline by light baking and Occlusion Culling in Unity, increased FPS and maintained 75fps on Oculus Quest (75Hz).
- Designed and conducted several user studies and demonstrations, collected feedbacks from up to 30+ users. The experiment result got accepted in ISMAR 2022.

January 2021 - May 2021

Anatomy Teaching System with Content Sharing across AR HMD and Light Field Display

Keywords: *Unity, Cross-platform, Collaboration*

- Collaborated with other researchers; designed and implemented a novel asymmetrical system.
- In charge of exploring possible networking feature solutions, implementing teaching and assessment features, and connecting with experts from veterinary medicine school.

January 2019 – September 2021 (Several projects)

AR Remote Canine Anatomy Teaching and Assessment Tools

Keywords: *Unity, Android platform, AR Foundation, ARCore, ARKit*

- Developed and deployed the app to both Android and iOS platforms using AR Foundation.
- Conducted a remote experiment by launching an opening test on the corresponding app store.

OTHER EXPERIENCE

January 2021 – February 2021

Webcam Face Motion Capture in Unity

- Retopologised the low-poly model in Maya and created blend shapes using AdvancedSkeleton.
- Achieved basic face motion capture using Dynamixyz and published a demo video.

July 2018

Recreate bedroom in VR using Unity

- Measured real environment using Oculus Quest and modelled the room using Blender.
- Rendered the scene with Universal Render Pipeline and published a demo video.

MAIN PUBLICATIONS

Using HMD-based Hand Tracking Virtual Reality in Canine Anatomy Summative Assessment: a User Study

October 2022, *21st IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*

HMD-based Virtual and Augmented Reality in Medical Education: a Systematic Review

June 2021, *Journal, Frontiers in Virtual Reality*

METAL: Explorations into Sharing 3D Educational Content across Augmented Reality Headsets and Light Field Displays

June 2021, *7th International Conference of the Immersive Learning Research Network*

Adapting a Virtual Reality Anatomy Teaching Tool for Mobility: Pilot Study

June 2020, *6th International Conference of the Immersive Learning Research Network*

Delaying When All Dogs to Go to Heaven: Virtual Reality Canine Anatomy Education Pilot Study

August 2018, *IEEE Games, Entertainment, Media Conference*