Tianrui Hu

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EDUCATION

Beijing University of Posts and Telecommunications (BUPT) Beijing, China
Master of Science in Digital Media Technology *2022.9 - Present*
Major GPA: 3.86.
Core courses: Human–Computer Interaction(91)/Advanced Computer Graphics(95)/Matrix Theory and Methods(97)/Quantum Imaging(99)/Deep Reinforcement Learning

BUPT & Queen Mary University of London Beijing, China
Bachelor of Science with Honours, ***First Class*** *in Telecommunications Engineering with Management 2018.9 - 2022.6*

RESEARCH EXPERIENCES

MEI Lab May. 2024 – Present
Advisor: Professor Kening ZHU *HongKong, China*

Beijing Key Laboratory of Network System and Network Culture Sep. 2022 – Present
Advisor: Professor Wenjun HOU *Beijing, China*

Project: Holographic Display and Interaction in 6G Communication Scenarios

- Explored limitations of current holographic technology in 6G communication. Aiming to improve interaction and immersion, developed interactive scenes and researched data streaming metrics.
- Employed an innovative approach to create multi-modal interactive avatars in holographic environments. Integrated large language models with digital virtual human technology to enable natural and immersive interactions.
- Implemented virtual human workflow with AIGC, including avatar creation, speech synthesis. Established backend platform for Unreal Engine integration. Optimized holographic imaging and data streaming for improved performance.

Project: VR-based AR Hospital Navigation Simulation

- Explored AR indoor navigation in hospitals to address user challenges. Investigated future interaction methods and UI displays through VR simulations.
- Conducted user analysis and researched usability for AR navigation scenarios.
- Implemented gesture-based interactions in Unreal Engine to enhance user experience. Experimented with methods to improve navigation within the AR hospital environment.

PUBLICATION

- T. Hu and W. Hou, "Gaze-Adaptive Subtitles for 360° Videos in Virtual Reality".- Accepted by ICVR2024.

WORK EXPERIENCES

Xiaomi Inc Mar. 2022 – Apr. 2022
3D application development. *Beijing, China*

- Developed AR device applications and content using Unity3D. Implemented brightness control within AR interface. Established ARSDK access, enabling Bluetooth finger ring control of AR cursors. Created testing programs, packaged and maintained projects, provided feedback.

HTC VIVEDU Nov. 2020 - Feb. 2021
Tech interns *Changsha, China*

- Utilized Unreal Engine 4 blueprint system to implement pick-up and equipment systems, alongside Blender for game scene creation. Developed VR content for educational sector using digital twins engine.

Projects

Tecent Computer Graphics & Rendering Project | *UE5 C++ developer, technical artist* Oct. 2023 – May. 2024

- Using World Creator for procedural landscape generation and creating landscape materials.
- Programmatically creating the entire scene, including realistic elements like grass, trees, and constructing indoor and outdoor environments.
- Implementing a weather and seasonal system tailored for the project.
- Optimizing rendering performance for the project.

VR Retro-style RogueLite Shooter Game | *UE5 C++ developer, design artist* Mar. 2023 – Present

- Developed art assets resembling those of "Doom," including sprites, props, and maps.
- Constructed game assets using Blender and Substance Painter.
- Developed a VR first-person shooter game using the UE5 engine, including designing and implementing enemy AI and some in-game visual effects.

Kongfu Pose Recognition Based on Kinect | *C# developer* Oct. 2022 – Dec. 2022

- Utilized the Kinect SDK to capture skeletal data and recognize key points of the human body.
- Calculated strike points of martial arts poses based on sound waveform.

Tsinghua University Online Exhibition | *Unity3D C# developer, technical artist* Oct. 2022 – Dec. 2022

- Collaborated with the Tsinghua University Student Union and the Academy of Arts & Design for scene modeling, construction, and material production.
- Deployed the project on the web using WebGL.
- Integrated Pico SDK to deploy the project in VR.

AWARDS

Second Prize, National College Student Digital Media Technology and Creativity Competition *2023*

SKILLS & INTERESTS

Programming: Python, Java, C++, C#, Javascript, OpenGL, Vue, Matlab
Digital Content Creation & Graphics Engine: Unreal Engine, Unity3D, Blender, Substance Painter
Language: Mandarin Chinese (Native), English (IELTS 7.0)
Interests: Computer Graphics, VR/AR, 3D Print, Modeling