

ZONGZHEN (JACK) YANG

862.400.3570
jackyangzzh@gmail.com
[Personal Website](#) | [GitHub](#) | [LinkedIn](#)

A dedicated, detailed, and award-winning AR/VR engineer with a decade of experience in building immersive and interactive virtual experiences. Proven talent for aligning project strategy and objectives with established and emerging mixed reality paradigms to achieve maximum operational impacts with minimum resource expenditures.

CORE COMPETENCIES

- Mixed Reality Development
- Human-Computer Interaction Design
- Interactive AR/VR Experiences
- Social Computing
- Accessibility Design
- Team Collaborations

TECHNICAL SKILLS

C# | C++ | TypeScript | Unity | Unreal | BabylonJS | React | OpenAI | OpenXR | VisionOS | Vulkan | OpenCV | ARKit | ARCore | Blender | Git

PROFESSIONAL EXPERIENCE

Microsoft

June 2022 – Present

Software Engineer II, Mixed Reality (Unity | Babylon.js | OpenAI SDK)

Redmond, WA

- Work on a set of delightful, high-quality, performant social experiences that work across 3D including Virtual Reality (VR) and Augmented Reality (AR), and 2D for PCs, Tablets, Phones, and other endpoints.
- Led cross-functional efforts to develop and deliver advanced features, optimized performance, and seamless localization for interactive avatar customization tools, ensuring inclusivity and high-quality user experience.
- Engineered scalable, data-driven solutions, including input system refactors and high-fidelity customization features, streamlining workflows, and supporting multi-platform integrations across web, VR, and standalone environments.

Holos Inc.

February 2019 – May 2022

AR/VR Interaction Engineer (Unity | Leap Motion | Blender | C#)

<https://holos.io/>

- Spearheaded the building of an interactive, networked AR/VR content management and training simulation system, featuring hand tracking with integrated gesture recognition and simulated physics.
- Created prototypes and deployed key features, including multiplayer networking, 3D model processing, and virtual object manipulation interface; this resulted in winning a \$750,000 research contract with the U.S. Air Force and being accepted into the TechStars program.
- Formulated and implemented new design decisions and product directions based on user testing observations.

Microsoft Mixed Reality Toolkit

March 2021 – March 2022

Open-Source Developer (Unity | Ultraleap | Git | C#)

github.com/MixedRealityToolkit-Unity

- Wrote 4,000+ lines of code to incorporate, optimize, and maintain Ultraleap (aka. Leap Motion) hand-tracking support and demonstration projects for Microsoft's Unity Mixed Reality Toolkit (MRTK).
- Partnered with developers and support personnel to handle bug fixes and repository documentation management.

RESEARCH EXPERIENCE

Kats Laboratory of Applied Physics

October 2017 – March 2022

AR/VR Researcher (Matlab | Unity | OpenGL | OpenXR)

Madison, WI

- Devised chromatic adjustment algorithms with computer vision techniques on hyperspectral images to simulate color blindness.
- Created and programmed virtual reality simulations to visualize research findings through color-calibrated Oculus Head Mounted Display (HMD), leading to practical design implications for potential human vision enhancement optical lenses.
- Accelerated development of an artificial intelligence algorithm to replicate human behavior during color vision deficiency tests such as Farnsworth-Munsell 100 Hue Test and D-15 Test; subsequently examine the accuracy of chromatic adjustment with 90% confidence.

University of Wisconsin Computer Graphics Lab

September 2019 – May 2020

Graphics Researcher (Unity | C++ | OpenGL)

Madison, WI

- Constructed a virtual reality teleoperation system where users could remotely control robots via hand and arm gestures by passing ROS data between Unity and robot through a network socket with minimal latency.
- Crafted a motion playback system with an intuitive user interface to dynamically replicate virtual robot arm movement; this was accomplished by interpolating robotic data from experiments in Unity that were used to analyze more than 15 lab experiments.

University of Wisconsin HCI Group, People and Robots Lab

April 2017 – November 2017

Research Assistant (C | Python | Raspberry Pi)

Madison, WI

- Designed and built a collaborative filtering recommender system for children's reading companion robots, resulting in a successful trial with eight families.
- Teamed effectively with mechanical engineering students to add speech recognition to robots using NLP techniques.

TEACHING & ADVISING EXPERIENCE

University of British Columbia Emerging Media Lab

Industry Advisor (Unity | Unreal | VisionOS)

May 2023 - Present

Vancouver, BC

- Provide instruction and constructive feedback on student projects, leveraging industry experience and expertise.
- Successfully mentored and guided over five projects from ideation to completion, enhancing students' technical and creative skills.

CS 559: Computer Graphics

Teaching Assistant (THREE.js | OpenGL | GLSL | Git)

Fall 2019 & Spring 2020

Madison, WI

- Mentored 350+ students for two semesters; offered comprehensive tutoring on course content and assignments.
- Cooperated with head faculty members to design engaging classroom materials; graded more than 550 student projects.

PROJECTS

Virtualso

Founder & Developer (Unity | OpenXR | C++ | C#)

January 2020 – June 2022

Madison, WI

- Developed a virtual reality interview simulation involving users being interviewed by customizable conversational humanoid agents capable of making emotion-driven facial expressions and body gestures using Natural Language Processing (NLP) techniques.
- Implemented a realistic virtual reality speech trainer where users upload their slides and present to a room of artificial intelligent audiences capable of reacting via body gestures and eye contact.
- Received very positive feedback from business school students who used the simulation to practice for job interviews and presentations.

PolySpace VR

Founder & Developer (Unity | Photon Networking | OpenXR)

September 2020 – August 2021

github.com/Poly-Space-VR

- Established and developed PolySpace VR, an open-source virtual reality social platform that promotes small virtual gatherings and minimal latency performance across devices, where players are encouraged to create and submit their own spaces to be featured.
- Published and received positive reviews on the Oculus Store; garnered more than 1,000 downloads and 350+ active users.

UpNote

Founder (Flutter | Firebase | Dart)

February 2017 - January 2020

Madison, WI

- UpNote is a B2C platform that enables venues and individuals to democratize music playlists and capture data on music preferences by allowing users to nominate songs through integration with their music streaming service of choice.
- Led a team of 3 developers to create a minimal viable product and recruited 4 local bars to participate in alpha testing.

PUBLICATIONS

Accepted

- J. Salman, M. Gangishetty, B. Rubio-Perez, D. Feng, Z. Yu, **Z. Yang**, C. Wang, A. Shahsafi, D. Congreve, M. A. Kats, "Passive frequency conversion of ultraviolet images into the visible using perovskite nanocrystals," Journal of Optics, Vol. 23, No. 5, 054001 (2021)

Other

- **Z. Yang**, B. Rubio-Perez, M. A. Kats, "Breaking Binocular Redundancy Through Virtual Reality," (2021)
- Featured in: Cameron, Mike, "Effective Leaders: Four Attributes That Underpin The Core Characteristics of Effective Leadership," SpiritCast Network (2021)

EDUCATION

University of Wisconsin-Madison | B.A. in Computer Science & B.A. in Communication Arts

August 2016 – June 2020

Carnegie Mellon University | National High School Game Academy

May 2015 – August 2015

Seton Hall Preparatory School | National Honor Society member

August 2013 – May 2016

CERTIFICATIONS

University of California San Diego | Interaction Design Specialization

University of California San Diego | VR Development Professional Certificate

Georgia Tech | Human-Computer Interaction Professional Certificate

University of London | Virtual Reality Specialization

Google | Project Management Certificate

Udacity | Computer Vision Nanodegree