

Zongzhen (Jack) Yang

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Innovative and passionate Mixed Reality (XR) developer with 6+ years' experience in building highly immersive and interactive virtual experiences, with a strong background in Human-Computer Interaction design and Social Computing.

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

RESEARCH EXPERIENCE

Kats Laboratory of Applied Physics	October 2017 - Present
<i>Researcher (Matlab Unity Hyperspectral Imaging Oculus)</i>	<i>Madison, WI</i>
<ul style="list-style-type: none">• Devise chromatic adjustment algorithms with computer vision techniques on hyperspectral images to simulate color blindness• Develop artificial intelligence algorithm to replicate human behavior during color vision deficiency tests such as Farnsworth-Munsell 100 Hue Test and D-15 Test to examine the accuracy of chromatic adjustment with 90% confidence• Program virtual reality simulations to visualize research findings through color-calibrated Oculus Head Mounted Display (HMD), resulting in practical design implications for potential human vision enhancement glasses	

University of Wisconsin Computer Graphics Lab	September 2019 - May 2020
<i>Researcher (Unity ROS (Robot Operating System) HTC Vive)</i>	<i>Madison, WI</i>
<ul style="list-style-type: none">• Built a virtual reality system where users can remote control robots with hand and arm gestures by passing ROS data between Unity and robot through network socket with little latency, resulting in a real-time mimicry control system• Created a motion playback system with intuitive user interface to dynamically replicate virtual robot arm movement by interpolating robotic data from experiments in Unity that was used to analyze 15+ lab experiments	

University of Wisconsin HCI Group People and Robots Lab	April 2017 - November 2017
<i>Researcher (C Python Raspberry Pi)</i>	<i>Madison, WI</i>
<ul style="list-style-type: none">• Developed a recommender system for children reading companion robots that resulted in a successful trial with 8 families• Collaborated with mechanical engineering students to add speech recognition to robots using NLP techniques	

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)

Under Review

Z. Yang*, B. Rubio-Perez*, J. Salman, M. Frising, M. A. Kats, "Monte Carlo Simulations of the Farnsworth-Munsell 100 Hue Color Vision Test for Anomalous Trichromatic and Dichromatic Observers", (Forthcoming, Spring 2022)

Z. Yang, B. Rubio-Perez, M. A. Kats, "Breaking Binocular Redundancy Through Virtual Reality", (Forthcoming, Fall 2021)

Others

Featured in: Cameron, Mike, "Effective Leaders: Four Attributes That Underpin The Core Characteristics of Effective Leadership", *SpiritCast Network* (2021)

TEACHING & ADVISING

CS559 Computer Graphics	Fall 2019 & Spring 2020
<i>Teaching Assistant (THREE.js GLSL Shader Git)</i>	<i>Madison, WI</i>
<ul style="list-style-type: none">• Provided tutoring and support to 350+ students on course content and assignments for 2 semesters• Assisted head faculty members with designing classroom materials and graded 550+ student projects	

PROFESSIONAL EXPERIENCE

Holos Inc.

February 2019 - Present

AR/VR Developer (Unity | Leap Motion | Blender)

<https://holos.io/>

- Build interactive networked VR and AR content management and training simulation system with hand tracking interaction
- Prototype and deploy key features, including multiplayer networking, hand gesture recognition, model processing, and user onboarding interface, resulting in winning a \$750,000 research contract with the U.S. Air Force
- Formulate and implement new design decisions and product directions based on user testing observations

Microsoft Mixed Reality

March 2021 - Present

Open-Source Developer (Unity | Ultraleap | Git)

github.com/MixedRealityToolkit-Unity

- Added and maintain Ultraleap (Leap Motion) hand tracking support and demo projects for Microsoft's Unity Mixed Reality Toolkit project by collectively contributing 4,000+ lines of code

LEADERSHIP EXPERIENCE

PolySpace VR

September 2020 - August 2021

Founder & Developer

github.com/Poly-Space-VR

- Designed and built an open-source VR social media application that promotes small virtual gatherings and optimized performance across devices, where players are encouraged to create and submit their own spaces to be featured
- Published and received critical acclaim on the Oculus Store, with 1,000+ downloads and 350+ active users

UpNote

February 2017 - January 2020

Founder

Madison, WI

- Upvote is B2B and B2C platform that allows venues and individuals to democratize music playlists and capture data on music preferences by allowing individuals 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

CERTIFICATES

Georgia Tech | Human-Computer Interaction Professional Certificate

University of California San Diego | VR Development Professional Certificate

University of London | Specialization in Virtual Reality

Udacity | Computer Vision Nanodegree

TECHNICAL SKILLS

C# | C++ | MATLAB | JavaScript | Unity | Unreal | Leap Motion | OpenVR | OpenGL | MRTK | ARKit | ARCore | Blender | Git