

# Wanze (Russell) Xie

## Education

- Sept 2019 - **Stanford University**, *Master of Science in Computer Science*  
Jun 2021 Specialization: Artificial Intelligence (AI), GPA: 4.17/4.0
- Sept 2015 - **University of California, San Diego**, *Bachelor of Science in Computer Science*, Provost's Honors  
Dec 2018 Major GPA: 4.0/4.0, Overall GPA: 3.93/4.0.

## Research and Work Experience

- Jan 2020 - **Stanford Vision & Learning**, *Research Assistant to Ehsan Adeli, advised by Fei-Fei Li*  
Present
  - Researching on multi-task and multi-agent activity detection at different granularity levels in the ICU setting
  - Curating novel action recognition datasets with complex human interactions for improved video understanding
  - Conducted preliminary research on domain adaptation for video action recognition based on I3D and LFB
- Sept 2017 - **Qualcomm Institute, Calit2**, *Research Staff, Undergraduate Researcher*
- Aug 2019 - **Automated Colon Segmentation & Reconstruction for Diagnosing Crohn's Disease**
  - Designed deep Convolutional Neural Networks based on U-Net using Tensorflow and trained on Kubernetes
  - Improved the prediction accuracy (by dice coefficient) by 12% with autoencoder and volume denoising
  - Surpassed the performance of published 3D curve reconstruction algorithm using vector aggregation.
  - Developed software with C# for visualizing reconstructed colon and wall thickness to help identify inflammation
  - Implemented Python to C++ Interface to adapt project for our DirectX 12 volume rendering engine
- **Interactive Multi-user 3D Visual Analytics in Augmented Reality (EI 2020 Accepted)**
  - Developed cross-platform (iOS and UWP) data analytics app with ARKit and MRTK using Unity and C#
  - Delivered a HoloLens app for the Bodylogical team at PwC to visualize 2000+ individuals' chronic diseases progression
  - Led the development team using Agile, and localized the app for a commercial conference demo in Tokyo, Japan
- Jan 2019 - **Nanome Inc**, *Software Engineering Intern*, San Diego, CA
- Jul 2019
  - Ported Nanome's Calcflow product from Oculus VR and deployed to Magic Leap One using Unity and LuminSDK
  - Tackled graphics inefficiency and improved general graphics performance by 60% with uncompromising visual effects
  - Developed the 3D animation for tooltips using sigmoid interpolation and improved the overall user experience
- Jan 2018 - **Ubiquitous Computing Lab, UC San Diego**, *Research Assistant to Nadir Weibel*
- Jan 2019 - **ARTEMIS: Mixed-Reality Environment for Immersive Surgical Telementoring (CHI 2020 Accepted)**
  - Developed shared multi-user platform for naval medical center to help provide remote surgical guidance
  - Implemented real-time cross-platform spatial synchronization between HoloLens and HTC Vive
  - Improved transmission efficiency for large 3D environment data under low bandwidth using depth map reconstruction

## Relevant Projects

- Sept 2019 - **Motion-Based Handwriting Recognition System**, (Stanford CS229 **Best Poster Award**)  
Jan 2020
  - Developed an end-to-end handwriting recognition system solely based on pen motion in real time.
  - Built the hardware using Arduino Uno R3, MPU9250 motion sensor, and custom 3D printed molds
  - Curated dataset with over 10,000 motion data samples from varied population, experimented with self-designed models including CNN, RNN with LSTM and autoencoders, and achieved ~87% recognition accuracy.
- Apr 2017 **DreamJournal: Image-Based Emotion Recognition and Artistic Video Generation**, (LA Hacks **Top 7**)
  - Created a cloud-based app that turns photos and texts to music video that reflects emotions
  - Implemented natural language understanding and AI music generation using MS Cognitive Service and Amper Music
- Oct 2016 **ReArt: Video Art Generation based on Style Transfer**, (SD Hacks **1st Place**)
  - Developed an award-winning web app that converts short videos into animated artwork based on user-selected style.
  - Optimized image and video processing using OpenCV, and implemented style transfer with VGG-19 using PyTorch

## Professional Skills

- Languages Python, C++, C#, Java, C, GLSL, JSON, HTML, CSS, JavaScript, SQL, MIPS Assembly, LaTeX  
Frameworks TensorFlow, Keras, Scikit-learn, OpenCV, PyTorch, Arduino, OpenGL, Unity3D, Vuforia, ARKit, MRTK