

Xinyun Cao

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Research objective

Looking to combine knowledge from BA in Computer Science and Cognitive Science, 2 years of research experience in VR HCI, Computer Vision and Computational Color, and a passion for VR/AR and games to conduct graduate research with the overall goal of helping to make new digital media like VR intuitive, efficient and fun.

Education

Bachelor's - University of California, Berkeley

2018.8-2022.5

- Major & Minor: Computer Science & Cognitive Science Major, Music Minor.
- Cum. GPA: 3.972 / 4.000.
- **Honors** in Computer Science, **High Distinction** in General Scholarship.
- Honors Thesis: *Split Embodiment Interactions*, Mentored by Björn Hartmann and James Smith.
- (Excluding Spring 2020) **Honors to Date** in 7/7 semesters, **Dean's List** in 4/7 semesters.

Teaching Experience

Undergraduate Student Instructor - UC Berkeley (Intro to Computer Graphics)

2022/1-2022/5

Taught discussion sessions of 10+ students and hosted exam review sessions. Answered questions during office hours and on the class forum. Helped develop class projects about Rasterization, Mesh Geometry, and Particle Simulation. Reviewed and scored open-ended final projects.

Research Experience

Undergraduate Researcher - Berkeley Institute of Design

2021/1-2022/5

Mentored by Björn Hartmann and James Smith. We started with VR Proto, trying to explore how VR can improve the prototyping process. During my Engineering Design Scholar program in the lab, I explored how modifying VR avatars can lead to design insight. Based on that, we proposed Dual Body Bimanual Interaction in VR, wrote a testing VR program in Unity 3D, conducted user study, and finished a Honors Thesis and a research paper for SIGCHI.

Undergraduate Researcher - Tetrachromacy

2021/8-2021/12

Mentored by Ren Ng for the Computational Color graduate-level course. I worked on a project analyzing the mathematical and biological model of tetrachromacy to study its color space. We proposed a new color-matching pipeline, and used PCA and hyperspectral dataset to find the basis for a Four Color Opponency system.

Undergraduate Researcher - ROAR VR

2020/9-2020/12

Mentored by Allen Yang for the Immersive Computing and Virtual Reality graduate-level course. I worked on the ROAR(Robot Open Autonomous Racing) VR project. Implemented and tested localization functionalities for a small car with an intel Realsense camera using OpenCV and Python. Built a virtual city using C# (Unity) to overlap images collected by car mount cameras, and export them into VR.

Professional Experience

Software Engineer (Mobile) - NimbleRX

2022/8-now

Developed a patient facing mobile app for a pharmacy platform. Worked with Flutter (Dart), as well as HTML API calls, and tools like Figma and Retool. The app has 170k+ downloads.

Software Engineer - Pocket Gems (Adventure Chef)

2021/6-2021/12

Developed game features in C# (Unity) and implemented gameplay debug tools for developers. Migrated a large number of parameters from Unity Editor to CSV files automatically using editor scripting. Made builds in Jenkins, participated in company playtests, and gave constructive feedback.

Software Developer - Geopogo

2020/4-2020/8

Implemented User Interface, login, and session system of a cooperative VR building software using C# (Unity). Incorporated Identification system with Amazon Cognito and multiplayer network using Amazon GameLift.

Personal Projects

Designer, Developer - Gesture-Music Interface

2020/11

Made a hand gesture-music interface built-in Python and Max MSP. Implemented with OpenCV computer vision module and PyOSC port.

Designer, Developer - Cognitive Training in VR Environment

2019/8-2020/5

Researched on paper about Cognitive Training for Traumatic Brain Injury patients. Developed a Dichotic Listening Training Program in VR using C# (Unity).

Developer - GAN Image Noise Cancellation

2019/5-2019/8

Learned about different Machine Learning deep neural network structures. Designed and implemented a model using Generative Adversarial Network in Python using Tensorflow. Generated a data set, trained the model, and achieved a product that performs noise cancellation on images.

Activities

External VP, Internal VP, Social Chair/ Upsilon Pi Epsilon (CS Honor Society)

2019/12-2022/5

Planned and organized social events to foster the CS community. Trained new members. Held academic office hours, academic advising sessions, resume critiques, and mock interviews.

Skills

Programming: Python, Dart, Java, C#, C++, C, React Native, SQL.

Technology: Git, Unity, OpenCV, Tensorflow, Maya, Adobe Audition, Max MSP.

Language: Chinese (Native), English (Professional), Japanese (Elementary)