Chengyuan (CY) Xu

Four Eyes Lab, Harold Frank Hall 5110
University of California, Santa Barbara
Santa Barbara, CA 93106

Email: cxu@ucsb.edu
Phone: +1 315-600-8610
Web: cy-xu.github.io

RESEARCH AREAS

Human-AI Collaboration, Semantic Segmentation, Interactive Machine Learning, Computer Imaging

EDUCATION

2020– M.S. in Computer Science, University of California, Santa Barbara
        Advisor: Tobias Höllerer

2017– Ph.D. in Media Arts and Technology, University of California, Santa Barbara
        Committee: Tobias Höllerer, Jennifer Jacobs, Marko Peljhan, Curtis McCully

2008–12 B.A. in Journalism, Communication University of China

PUBLICATIONS

2024   **Xu, C.**, Kumaran, R., Stier, N., Yu, K., & Höllerer, T. "AR Collaborative Intelligence for 3D Understanding and Version Control." *Under review.*

2023   Zhu, J., Kumaran, R., **Xu, C.**, & Höllerer, T. "Free-form Conversation with Human and Symbolic Avatars in Mixed Reality." ***IEEE ISMAR 2023***.

2023   **Xu, C.**, Lien, K.C., & Höllerer, T. "Comparing Zealous and Restrained AI Recommendations in High-stakes Human-AI Collaboration." ***ACM CHI 2023***.

2022   **Xu, C.**, Dong, B., Stier, N., McCully, C., Howell, D. A., Sen, P., & Höllerer, T. "Interactive Segmentation and Visualization for Tiny Objects in Multi-megapixel Images." *CVPR 2022 demo* and *proceedings*.

2022   **Xu, C.**, McCully, C., Dong, B., Howell, D. A., & Sen, P. "Cosmic-CoNN: A Cosmic Ray Detection Deep Learning Framework, Dataset, and Toolbox." ***240th American Astronomical Society meeting***, *oral presentation*. ***The Astrophysical Journal***, *Volume 942, Number 2*.

2021   Hiramatsu, D. et al., including **Xu, C.** "The electron capture origin of supernova 2018zd." *Cover story,* ***Nature Astronomy***, *Volume 5, Issue 9.*

PROFESSIONAL EXPERIENCE

| 2023 | **Research Scientist/Engineer Intern, Adobe**
Jun. 2023 – Sept. 2023 |

- Improved the eye makeup model in Photoshop Express and released in iOS and Android products.
- Submitted a patent for a future "all-in-one" facial makeup model.

2022 Computer Vision Intern, Appen
Dec. 2021 – Sept. 2022

- "Comparing Zealous and Restrained AI Recommendations in High-stakes Human-AI Collaboration." We proposed a human-in-the-loop, AI-assisted video annotation workflow that helped human annotators to track faces 30% faster with better quality.
- We designed a large user study and investigated 3,466 person-hours of annotation work. The analysis revealed significant findings to guide future designs of human-AI collaboration systems in high-stakes tasks.

2021 Computer Vision Researcher, Benioff Ocean Science Laboratory
Summer Internship

- "BOI Baltimore Trash Wheel Computer Vision Model and Dataset." We produced a new dataset and a detection model to identify 15 types of ocean-bound river wastes like plastic bottles or bags, foam fragments, and other inorganic wastes in complex trash wheel images.
- The project aims to support more efficient and more accurate data collection for a greater understanding of the types and sources of river waste and to ultimately turn off the tap of plastic and other solid waste pollution into the ocean.

2019 Imaging Intern, Las Cumbres Observatory
Summer Internship

- "Cosmic-ConNN: A Cosmic Ray Detection Deep Learning Framework, Dataset, and Toolbox." This work features a large-scale dataset and SOTA models to detect cosmic rays in astronomical imaging data using deep learning. Our proposed novel loss function and network design greatly improve model generality for new observations from telescopes not included in the training data. The open-source dataset, framework, and GUI toolkit make deep-learning models widely accessible by the community of astronomers.

2018 Computer Vision Intern, ByteDance AI Lab
Summer Internship

- "Virtual Musical Instruments." A TikTok prototype that allows users to interact with musical instruments and sound interpolation using real-time pose-estimation.

2016–17 Peking University, Part-time Lecturer

2015–16 BBC News, Multimedia Producer

2012–15 CNN International, Video Journalist

OTHER PROJECTS

2018-19   "Coherent Video Style Transfer." We propose a novel generative adversarial network (GAN) architecture to achieve spatially and temporally coherent video style transfers.

2018   motionLight. A playful interactive audio-visual installation inspired by Jim Campbell's low resolution artwork series.

2018   Top wildlife buyers and sellers in 2016. Flocking based interactive data visualization of wildlife trades in 2016.

SERVICE

2024   Reviewer, ACM CHI 2024 Student Research Competition

2023   Reviewer, ACM CHI PLAY 2023 Work-In-Progress, PacificVis 2024

2022   Reviewer, ACM CHI 2023

2021–22   Student Representative, Media Arts and Technology Program, UCSB.

2020–21   Peer Mentor, Women In Computer Science, WiCS Mentorship Program, UCSB.

ACADEMIC EXPERIENCE

2021   Lead writer for a NASA Future Investigators Grant Proposal

2021   SDSC Cyberinfrastructure-Enabled Machine Learning Summer Institute

2018–23   Graduate Student Researcher, University of California, Santa Barbara

GRANTS AND AWARDS

2018-22   International Doctoral Recruitment Fellowship ($15,000 Annually).

2020   Mellichamp 21st Century Global Dynamics Graduate Research Fellowship ($7,500).

2018   Media Arts and Technology Grant ($2,500).

2018   MAT End of Year Show Grant ($750).