Chengyuan (CY) Xu

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RESEARCH AREAS

Human-AI Collaboration, Semantic Segmentation, Multi-Object Tracking, Interactive Machine Learning, Video Style Transfer, Astronomical Image Processing, 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

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

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

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.

ACADEMIC EXPERIENCE

2022 Reviewer, ACM CHI 2023

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

SERVICE

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

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

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).

Updated August 2023