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: github.com/cy-xu

RESEARCH AREAS

Machine Learning: Interactive Machine Learning, Semantic Segmentation, Multi-Object Tracking, Applied ML Systems

Image Processing: Astronomical Image Processing, Computer Imaging

EDUCATION

2020– M.S. in Computer Science, University of California, Santa Barbara
Advisor: Tobias Höllerer
Degree expected in June 2023.

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

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*.

2021 **Xu, C.**, McCully, C., Dong, B., Howell, D. A., Sen, P. "Cosmic-ConNN: A Cosmic Ray Detection Deep Learning Framework, Dataset, and Toolbox." ***The Astrophysical Journal*** *in review.* ***240th AAS Meeting*** *(oral)*.

2021 Hiramatsu, D., Howell, D. A., [and 28 others, including **Xu, C.**] "The electron capture origin of supernova 2018zd." ***Nature Astronomy****, Volume 5, Issue 9 cover story.*

PROJECT EXPERIENCE

2021 "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 (pending release).

2020-21 "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.

2018-19 "Coherent Video Style Transfer." The proposed unsupervised deep-learning framework utilizes a novel generative adversarial network to achieve spatially and temporally coherent video style transfers (pending release).

2018 Virtual Musical Instruments. A real-time pose-estimation interactive application prototype for TikTok during ByteDance AI Lab internship.

2018 "Distributed Flocking Simulation." Flocking simulation built for AlloSphere, CNSI. Showcasing distributed OpenGL rendering to synchronize 26 projectors with limited bandwidth (demo available in AlloSphere).

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.

WORK EXPERIENCE

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

2021 Benioff Ocean Initiative
Summer Internship, Computer Vision Researcher

2019 Las Cumbres Observatory
Summer Internship, Imaging Intern

2018 ByteDance AI Lab
Summer Internship, Computer Vision Intern

2016–17 Peking University, Part-time Lecturer

2015–16 BBC News, Multimedia Producer

2012–15 CNN International, Video Journalist

ACADEMIC EXPERIENCE

2018–22 Graduate Student Researcher, University of California, Santa Barbara

2021 The San Diego Supercomputer Center Cyberinfrastructure-Enabled Machine Learning Summer Institute

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 October 2022