XIAOYAN CONG

Zhejiang University, P.R. China

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EDUCATION

Zhejiang University   Hangzhou, China
B.E.(Honors) in Robotics Engineering, Minor: Mathematics & AI   Sep 2020 – Jun 2024
- Chu Kochen Honors College, GPA: 3.97/4.00
- Research Interest: 3D Computer Vision, Computer Graphics and Generative AI

Hong Kong University of Science and Technology   Hong Kong, China
Exchange Student & Research Intern   Jan 2023 – Jun 2023
- Dean's List, GPA: 3.83/4.00

PUBLICATIONS

1. **Xiaoyan Cong**, Haitao Yang, Liyan Chen, Kaifeng Zhang, Li Yi, Chandrajit L. Bajaj, and Qixing Huang "4DRecons: 4D Neural Implicit Deformable Objects Reconstruction from a single RGB-D Camera with Geometrical and Topological Regularizations", Under Review, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024*
2. **Xiaoyan Cong**, Yue Wu, Qifeng Chen and Chenyang Lei "Automatic Controllable Colorization by Imagination", Under Review, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024*

RESEARCH EXPERIENCE

The University of Texas at Austin (Department of Computer Science)   Austin, Texas, USA
Research Intern, Supervisor: Prof. Qixing Huang & Prof. Li Yi   Jun 2023 – Nov 2023
4D Neural Implicit Deformable Object Reconstruction (In submission to CVPR 2024 as the first author)
- Introduced a novel approach *4DRecons* that takes a monocular RGB-D sequence of dynamic objects as input and outputs a complete textured deforming reconstruction.
- Proposed an optimization procedure that enforces the deformation among adjacent frames is as-rigid-as-possible (ARAP) and ensures the topology remains fixed over time.
- Demonstrated that *4DRecons* can handle large deformations and complex inter-part interactions, outperforming state-of-the-art approaches considerably.

Hong Kong University of Science and Technology (Visual Intelligence Lab)   Hong Kong, China
Research Intern, Supervisor: Prof. Qifeng Chen   Feb 2023 – Nov 2023
Automatic Controllable Colorization by Imagination (In submission to CVPR 2024 as the first author)
- Introduced a novel framework for automatic and controllable colorization, enabling iterative editing and modifications.
- Proposed an Imagination Module that utilizes Diffusion Models (ControlNet) to generate multiple reference candidates with similar semantics and structures to a black-and-white input. The optimal reference is composed from all reference candidates by selecting each segment with the most similar DINO feature.
- Devised a Colorization Module that colorizes the black-and-white input under the guidance of the optimal reference.
- Demonstrated our framework's superiority over state-of-the-art methods, achieving controllable and editable colorization, which is non-trivial in the automatic colorization community.

Zhejiang University (the State Key Laboratory of CAD&CG)   Hangzhou, China
Research Intern, Supervisor: Prof. Xiaowei Zhou   May 2022 – Feb 2023
Neural Reconstruction and Novel View Synthesis of Transparent Objects
- Proposed a novel method to reconstruct transparent objects and synthesize novel views.
- Learned a neural implicit SDF field with the 3D-varying index of refraction (IOR).
- Introduced a refraction-ray-tracing-based volume rendering scheme, adhering to the laws of eikonal light transport.

SELECTED AWARDS AND HONORS

- Chinese National Scholarship (by Ministry of Education of the People's Republic of China, ~Top 0.2%)   2021
- Excellence Scholarship (by Chu Kochen Honors College, Zhejiang University, ~Top 1%)   2022
- Chunhui Scholarship (by College of Control Science and Engineering, Zhejiang University, ~Top 1%)   2023
- Zhejiang Provincial Government Scholarship (~Top 2%)   2022
- First-prize Scholarship of Zhejiang University (~Top 2%)   2022
- First-prize of Zhejiang Province in the 13th National College Students Mathematics Competition   2021

ADDITIONAL INFORMATION

Technical Skills
- C/C++, Python (Pytorch), Matlab, Linux/Windows, MeshLab, Blender, SolidWorks, CoppeliaSim, Multisim

Languages
- Chinese (Native), English (TOEFL 106)

Leadership
- Department Head of Chu KoChen College Student Union, Volunteer of the 19th Asian Games and 19th Asian Para Games

Miscellaneous
- National Second-class Go (Weiqi) Athlete, Saxophone (10-level, Top in Amateur), Piano (8-level)