Anpei Chen (陈安沛)

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Homepage Google Scholar Github
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About Me

I'm an ELLIS Postdoc, jointly supervised by Prof. Andreas Geiger (Universität Tübingen) and Prof. Siyu Tang (ETH Zürich). I obtained my Ph.D at the Chinese Academy of Sciences (ShanghaiTech) in 2022, working with Prof. Jingyi Yu. During this time, I have been an intern at Disney Research (Los Angeles, USA) and Hao Su's Research Lab (University of California San Diego, USA). Before that, I received my Bachelor's degree in 2016 from Xidian University.

My research interests lie at the intersection of computer graphics and vision, including geometric modeling/reconstruction, realistic appearance rendering, and controllable image synthesis. I have a great passion on new things and ideas, my goal is to create magic and happiness. Outside my research, I love photography, badminton, and movie appreciation.

Education

Aug 2022	ELLIS PostDoc at **ETH Zürich** and **University of Tübingen**
Jan 2022	PhD of Computer Science at **Chinese Academy of Sciences (ShanghaiTech)**, LAB
July 2018	Master of Computer Science at **Chinese Academy of Sciences**, Shanghai, China
	Major: Computer Vision & Graphics & Photography
	Course: Computer Vision I & II, Computer Graphics II, Machine Learning
	Deep Learning, SLAM, Convex Optimization, Computer Photography
	TA: Algorithm Analysis Fall 2016
July 2016	Bachelor Degree in Electronic Information Science and Technology
	Xidian University, China
	Awards: Special Prize of 26th Starfire Cup in Xidian University
	The 11th College Outstanding Students of Science and Technology
	Third Prize of 2015 National College Student Challenge Cup Academic Competition

Patents

· An Anti-motion sickness seat and method for seat balance adjustment (CN104972932A)
· A wearable electromyography arm ring (CN104586391A)
· A deep learning based surface light field rendering method for mobile device (CN109829967A)
· Method for Real-Time Rendering of Giga-Pixel Images (US Patent: 16970632)

Academic Experience

Winter 2020
1 year

Research Assistant at UCSD SU Lab | Advisor: Hao Su and Zexiang Xu

Working on multi-view stereo reconstruction and neural rendering. More specifically, our gold is to design a fast generalizable radiance field reconstruction from Multi-View Stereo that we can reason new scenes just from a few sparse image samples.

Winter 2018
4 months

Intern at Disney Research LA, *Lab Associate* | Mentor: Kenny Mitchell

Worked on global illumination rendering and human-to-cartoon body reconstruction system. More specifically, attempt to peed up path tracing process via optimizing the light path sampling algorithm according to its' temporal ray samples. I also took part in a human-to-cartoon project and in charge of recovering dynamic facial wrinkles. We submitted two patents during the internship.

Summer 2016
3 months

Intern at DGene, *Engineer* | DGene

Worked on virtual reality device, object reconstruction and rendering. Stereo Video player on HTC Vive, fast refocusing algorithm with RGBD panorama input. And preparing a demo of digitalis products (Tang San Cai, bottle and handBag etc.) for Alibaba Buy+ Act. Our solution is demonstrated on the conference due to its' high data compression performance (2000 : 1) and we also published a paper on I3D'18.

Community Services

Area Chair: CVPR 2023/24, 3DV 24

Journal reviewer: TOG, TIP, TPAMI, INFFUS ...

Conference reviewer: SIGGRAPH, SIGGRAPH Asia, ICCV, ICLR, NeurIPS, AAAI ...

Selected Publications

▶ **Dictionary Fields: Learning a Neural Basis Decomposition**

TL; DR: We provide a unified formula for neural fields and a novel dictionary factorization.

Anpei Chen, Zexiang Xu, Xinyue Wei, Siyu Tang, Hao Su, Andreas Geiger

(Trans. on Graphics SIGGRAPH'23) [project page] [paper] [code]

▶ **SDFStudio: A Unified Framework for Surface Reconstruction**

TL; DR: We provide a unified framework and benchmark for neural implicit surface reconstruction.

Zehao Yu, **Anpei Chen**, Bozidar Antic, Songyou Peng, Apratim Bhattacharyya,
Michael Niemeyer, Siyu Tang, Torsten Sattler, Andreas Geiger

(OpenSource Project) [project page]

▶ **TensoRF: Tensorial Radiance Fields**

TL; DR: We present a novel factorize technique to model and reconstruct radiance fields.

Anpei Chen*, Zexiang Xu*, Andreas Geiger, Jingyi Yu, Hao Su

Most influential ECCV'22 papers #2

(ECCV'22) [project page] [paper] [code] [NeRFStudio]

► **MVSNeRF: Fast Generalizable Radiance Field Reconstruction from Multi-View Stereo**

TL; DR: We bridge multiview stereo with NeRF for generalizable novel view synthesis.

Anpei Chen*, Zexiang Xu*, Fuqiang Zhao, Xiaoshuai Zhang, Fanbo Xiang, Jingyi Yu, Hao Su

(ICCV'21) [project page] [paper] [code]

► **GNeRF: GAN-based Neural Radiance Field without Posed Camera**

TL; DR: We bridge generative model with NeRF for camera pose estimation and reconstruction.

Quan Meng, **Anpei Chen**, Haimin Luo, Minye Wu, Hao Su, Lan Xu, Xuming He, Jingyi Yu

(ICCV'21 Oral) [paper] [code]

► **SofGAN: A Portrait Image Generator with Dynamic Styling**

TL; DR: We propose a GAN-based image generator with explicit attribute controlling.

Anpei Chen*, Ruiyang Liu*, Ling Xie, Zhang Chen, Hao Su and Jingyi Yu

(Trans. on Graphics) [project page] [code]

► **A Neural Rendering Framework for Free-Viewpoint Relighting**

TL; DR: We bridge scene relighting with novel view synthesis.

Zhang Chen, **Anpei Chen**, Guli Zhang, Chengyuan Wang, Yu Ji, Kiriakos N. Kutulakos, Jingyi Yu

(CVPR'20) [paper] [code]

► **Photo-Realistic Facial Details Synthesis From Single Image**

TL; DR: We reconstruct 3D facial proxy and fine geometric details from single-image.

Anpei Chen, Zhang Chen, Guli Zhang, Ziheng Zhang, Kenny Mitchell, Jingyi Yu

(ICCV'19 Oral) [paper] [code] [slides] [video]

► **Learning Semantics-aware Distance Map with Semantics Layering Network for Amodal** Instance Segmentation

TL; DR: A novel semantics-aware distance map representation for amodal segmentation.

Ziheng Zhang*, **Anpei Chen***, Ling Xie, Jingyi Yu, Shenghua Gao

(ACM MM'19) [paper] [code]

► **Deep Surface Light Fields**

TL; DR: The earliest (to my knowledge) implicit representation for novel view synthesis.

Anpei Chen, Minye Wu, Yingliang Zhang, Nianyi Li, Jie Lu, Shenghua Gao and Jingyi Yu

(I3D'18) [paper] [video] [slides]