Xuangeng CHU

xuangeng.chu@mi.t.u-tokyo.ac.jp | xg.chu@outlook.com

Research Interests

1. Novel view synthesis (NeRF / 3DGS).
2. Human-centric 3D vision, digital human, shape / pose generation and reconstruction.

Education

The University of Tokyo	**Apr 2023 – now**
Ph.D. Candidate in RCAST, University Fellowship, Supervisor: Prof. Tatsuya HARADA	Tokyo, Japan
Peking University	**Sep 2018 – Jun 2021**
M.Eng. in Software Engineering, Supervisor: Prof. Yasha WANG	Beijing, China
Tongji University	**Sep 2014 – Jun 2018**
B.Eng. in Computer Science	Shanghai, China

Work Experience

Tencent, Research Engineer   **Mar 2021 – Oct 2022**
Applied Research Center, work closely with Dr. Ying SHAN   Shenzhen, China
- *Worked on category extensible object detection algorithm for videos.*
- *Worked on articulated model reconstruction algorithm for a virtual scene generating system.*

Internship Experience

Princeton University, Visiting student researcher   **Jul 2024 – Aug 2024**
Advised by Prof. Jia DENG   New Jersey, USA
- *Worked on research of general one-shot 3D reconstruction.*

International Digital Economy Academy, Research intern   **Dec 2022 - Nov 2023**
Advised by Dr. Yu LI   Shenzhen, China / Remote
- *Worked on research and development of human reconstruction and pose estimation.*

Microsoft Research Asia, Research intern   **Jun 2020 - Feb 2021**
Advised by Dr. Xiulian PENG   Beijing, China
- *Worked on research of audio-visual speech separation problem (cocktail party problem).*

MEGVII Technology, Research intern   **Jan 2019 - Jun 2020**
Advised by Dr. Xiangyu ZHANG   Beijing, China
- *Worked on research and development of object detection in crowded scenes.*

Publication

Generalizable and Animatable Gaussian Head Avatar　　　　　　　　**NeurIPS 2024**
Xuangeng Chu, Tatsuya Harada

We propose the first generalizable 3DGS head avatar framework that achieves single forward reconstruction and real-time reenactment. The key idea of this work is lifting two sets of 3D Gaussian points from the input image. Project website and code: https://xg-chu.github.io/project_gaga.

GPAvatar: Generalizable and Precise Head Avatar from Image(s)　　　　**ICLR 2024**
Xuangeng Chu, Yu Li, Ailing Zeng, Tianyu Yang, Lijian Lin, Yunfei Liu, Tatsuya Harada

We propose a framework to reconstructs 3D head avatars from one or several images in a single forward pass. The key idea of this work is a dynamic point-based expression field and a attention-based fusion module. Project website and code: https://xg-chu.github.io/project_gpavatar.

Real-time High-resolution View Synthesis of Complex Scenes with Explicit 3D Visibility Reasoning　　　　　　　　　　　　　　　　　　　　　　**TVCG 2024**
Tiansong Zhou, Yebin Liu, **Xuangeng Chu**, Chengkun Cao, Changyin Zhou, Fei Yu, Yu Li

We propose a view synthesis method capable of real-time rendering of high-resolution novel-view images from sparse view inputs. Our method uses explicit 3D visibility reasoning as the core technique to address the occlusion problems of input views.

Accurate 3D Face Reconstruction with Facial Component Tokens　　　　**ICCV 2023**
Tianke Zhang, **Xuangeng Chu**, Yunfei Liu, Lijian Lin, Zhendong Yang, Zhengzhuo Xu, Chengkun Cao, Fei Yu, Changyin Zhou, Chun Yuan, Yu Li

We propose a framework for 3D face reconstruction from monocular images based on 3DMM and transformers. Our method uses separate tokens to improve the disentanglement of shape and expression for more accurate reconstruction.

Detection in Crowded Scenes: One Proposal, Multiple Predictions　　　**CVPR 2020 Oral**
Xuangeng Chu*, Anlin Zheng*, Xiangyu Zhang*, Jian Sun

We propose a simple and almost cost-free method to improve the detection performance in crowded scens. The key idea of this work is to predict a set of instances from each proposal reagion instead of just one. Code is avaliable on: https://github.com/xg-chu/CrowdDet.

Services

Reviewer, TPAMI; CVPR 2022, 2023; ACMMM 2024; NeurIPS 2024; ICLR 2025.