Yuedong (Donny) CHEN

yuedong.chen@monash.edu | donydchen.github.io | github.com/donydchen (stars: 1300+) | google scholar (citations: 530+)

Education

Monash University, Melbourne, Australia (Top 8 University in Australia) *Jul 2021 - Nov 2024*

Ph.D. Candidate in Information Technology. Supervisors: Jianfei Cai (IEEE Fellow), Tat-Jen Cham (with NTU, SG)

- Research topic: reconstructing and editing 3D scenes by leveraging sparse-view 2D data

Sun Yat-sen University, Guangzhou, China (Top 10 University in China) *Aug 2016 - Jun 2018*

M.E. in Software Engineering *GPA: 3.9/4.0*

Sun Yat-sen University, Guangzhou, China (Top 10 University in China) *Sept 2012 - Jun 2016*

B.E. in Software Engineering *GPA: 3.7/4.0*

- Additional program: exchange student at National Chi Nan University (Taiwan) for one semester.

Research Interests

3D Computer Vision, Generative Modeling, Neural Rendering, Affective Computing

Selected Publications

MVSplat360: Feed-Forward 360 Scene Synthesis from Sparse Views *NeurIPS*

Yuedong Chen, Chuanxia Zheng, Haofei Xu, Bohan Zhuang, Andrea Vedaldi, Tat-Jen Cham, and Jianfei Cai *2024*

Abstract: We introduce **MVSplat360, a feed-forward approach for 360°novel view synthesis (NVS)** in wild scene scenarios given only sparse observations. This task of generalizable 360°scene reconstruction from sparse views is challenging and ill-posed. Existing methods fail to achieve plausible 360°scene reconstruction from such sparse observations due to insufficient information to recover the entire scene and the minimal overlap between given views. Therefore, our MVSplat360 takes an initial step toward addressing these challenges, which first matches and fuses view information through a cross-view transformer encoder, then constructs a coarse 3D geometry using the latest **3D Gaussian Splatting**, and finally refines invisible and inconsistent appearances with a pre-trained **Stable Video Diffusion** model. We construct a new benchmark using the challenging DL3DV dataset, where MVSplat360 significantly outperforms prior works in wide-baseline and even 360°NVS from sparse image observations. We also conduct extensive comparisons on the existing RealEstate10K benchmark, further demonstrating the efficacy of our method. (*Paper and code will be released soon.*)

MVSplat: Efficient 3D Gaussian Splatting from Sparse Multi-View Images *ECCV (Oral)*

Yuedong Chen, Haofei Xu, Chuanxia Zheng, Bohan Zhuang, Marc Pollefeys, Andreas Geiger, Tat-Jen Cham and Jianfei Cai *2024*

- **TL;DR:** MVSplat is an efficient feed-forward 3D Gaussian Splatting model learned from sparse multi-view images.
- **Featured at:** GitHub (780+ Stars); HackerNews (130+ Upvotes)

MuRF: Multi-Baseline Radiance Fields *CVPR*

Haofei Xu, Anpei Chen, **Yuedong Chen**, Christos Sakaridis, Yulun Zhang, Marc Pollefeys, Andreas Geiger, *et al.* *2024*

TL;DR: MuRF is a feed-forward approach for sparse view reconstruction with small and large baselines, and varying numbers of views.

Explicit Correspondence Matching for Generalizable Neural Radiance Fields *Under Review at TPAMI*

Yuedong Chen, Haofei Xu, Qianyi Wu, Chuanxia Zheng, Tat-Jen Cham, and Jianfei Cai *2023*

TL;DR: MatchNeRF is a generalizable NeRF approach that employs explicit correspondence matching as the geometry prior.

Sem2NeRF: Converting Single-View Semantic Masks to Neural Radiance Fields *ECCV*

Yuedong Chen, Qianyi Wu, Chuanxia Zheng, Tat-Jen Cham, and Jianfei Cai *2022*

TL;DR: Sem2NeRF pioneers the task of converting a single-view object semantic mask to the corresponding 3D scene.

Object-Compositional Neural Implicit Surfaces *ECCV*

Qianyi Wu, Xian Liu, **Yuedong Chen**, Kejie Li, Chuanxia Zheng, Jianfei Cai, and Jianmin Zheng *2022*

TL;DR: ObjectSDF extracts the high-fidelity geometry of each object from a sparse set of input images and semantic masks.

Towards Unbiased Visual Emotion Recognition via Causal Intervention *ACMMM*

Yuedong Chen, Xu Yang, Tat-Jen Cham, and Jianfei Cai *2022*

GeoConv: Geodesic Guided Convolution for Facial Action Unit Recognition *Pattern Recognition*

Yuedong Chen, Guoxian Song, Zhiwen Shao, Jianfei Cai, Tat-Jen Cham, and Jianming Zheng *2022*

Label Distribution Learning on Auxiliary Label Space Graphs for Facial Expression Recognition *CVPR*

Shikai Chen, Jianfeng Wang, **Yuedong Chen**, Zhongchao Shi, Xin Geng, and Yong Rui *2020*

Facial Motion Prior Networks for Facial Expression Recognition *IEEE VCIP (Oral)*
Yuedong Chen, Jianfeng Wang, Shikai Chen, Zhongchao Shi, and Jianfei Cai *2019*

Work Experience

Monash University *Melbourne, Australia*
Research Fellow. Supervisors: Hamid Rezatofighi, Ian Reid *Oct 2024 - Present*
- Work on research related to 3D vision and indoor navigation.

Monash University *Melbourne, Australia*
Research Assistant. Supervisors: Jianfei Cai, Reza Haffari *Feb 2022 - Nov 2022*
- Project name: dialogue assistance for negotiations in cross-cultural settings: a neuro-symbolic computational approach
- Help implement the multi-modal emotion recognition system

Institute for Media Innovation (IMI), Nanyang Technological University (NTU) *Singapore, Singapore*
Research Associate. Supervisors: Jianfei Cai, Tat-Jen Cham *Jan 2019 - Apr 2021*
- Research topic: enhancing visual emotion recognition by using human prior knowledge.
- Two conference papers accepted by: IEEE VCIP-19, ACMMM-22. One journal paper accepted by: Pattern Recognition.

AI Lab, Lenovo Research *Beijing, China*
Research Intern. Supervisors: Jianfeng Wang, Zhongchao Shi *Jul 2018 - Dec 2018*
- Research topic: improving facial expression recognition through label enhancement.
- One paper accepted by: CVPR-20. One popular re-implementation project: ganimation_replicate (Starred:230+).

Professional Skills

Programming Python (PyTorch, NumPy, *etc*.), C++, HTML/CSS, JavaScript, *etc*.
Languages English (working proficiency), Mandarin Chinese (native speaker), Teochew (native speaker), Cantonese (fluent).

Academic Services

Invited Talks Wayve UK (08/11/24), ECCV24 Oral (02/10/24), CAD&CG Lab ZJU(30/08/24), SHUZIHUANYU (27/08/24), 3DCVer (20/08/24)
Conference Reviewer ECCV('24), CVPR('23,'24), ICCV('23), NeurIPS('24), ICLR('24), 3DV('24), ACMMM('21-'24), AAAI('24), ACCV('24), ISMAR('23,'24), IEEEVR('24)
Journal Reviewer TPAMI, IJCV, TIP, TMM, TCSVT, TOMM, TVCJ, Computers & Graphics, The Visual Computer