

WEIYU LI

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EDUCATION

Interdisciplinary Research Center, Shandong University (IRC, SDU) Sept. 2020 – Present
M.Sc. in Computer science and technology. Supervised by: Prof. Baoquan Chen

Shandong University (SDU) Sept. 2016 – Jun. 2020
Honors B.Eng. in Software Engineering. Grade: 89.32/100 (overall rank 4 out of 111)

EXPERIENCE

Tencent AI-Lab Nov. 2021 – Present
Research intern, working on character motion generation. Shenzhen, China

Visual Computing and Learning Lab, Peking University Aug. 2021 – Nov. 2021
Visiting student, worked on 3D neural scene generation. Beijing, China

AICFVE, Beijing Film Academy Jan. 2021 – Jun. 2021
Intern(remote), worked on building digital human. Qingdao, China

PROJECTS

Research Interests: 3D Content Generation, Point Cloud Processing, Efficient Computer Vision, HCI with AR etc.

Dynamic Digital Humans Reconstruction | (accepted by EG2022)

- Using a single video captured by a mobile phone, we can build the dynamic humans and support bullet-effect rendering.
- Based on Neural Radiance Fields for high-quality rendering, we proposed a general and carefully designed optimization scheme, which includes a dedicated initialization step and a consensus regularization to constrain the motion flow.

Character Motion Generation from Limited Motion Clips | (on-going)

- Generating diverse novel motions of arbitrary characters without the need for a large amount of data.
- We proposed an efficient skeleton-agnostic motion generation algorithm, which can solve the performance degradation problem when the characters' joints are complex and keep the real motion details, such as jumping and dancing.

3D Neural Scene Generation Using A Single Exemplar | (in submission)

- Aiming to generate novel scenes with fine geometric structure and photo-realistic appearance from a single exemplar.
- We proposed a patch-based model to generate diverse 3D natural scenes from a single exemplar while keeping the visual effect, such as the reflection, shadow, etc. Through multi-view images as input, we first reconstruct the scene using neural representation for photo-realistic appearance and then efficiently synthesize novel scenes in a coarse-to-fine manner.

Structure-guided Multimodal Point Cloud Completion

- Multimodal shape completion while considering the structure of the objects.
- Many previous methods ignore the ambiguity when reasoning the missing geometry. We then proposed a GAN-based model with heterogeneous representation to complete the partial point cloud and its structure.

Efficient Neural Architecture Search

- Proposed a bunch of optimization methods, including greedy search, progressive learning and heuristic fusion strategy, and reached SOTA on ImageNet under the computational limit of 600M FLOPs.

PUBLICATIONS

- [1] “MoCo-Flow: Neural Motion Consensus Flow for Dynamic Humans in Stationary Monocular Cameras”, accepted by Computer Graphics Forum (Eurographics 2022). 41(2): 147-161
Xuelin Chen, **Weiyu Li**, Daniel Cohen-Or, Niloy J. Mitra, Baoquan Chen
- [2] “3D Natural Scene Synthesis”, in submission
Weiyu Li, Xuelin Chen, Jue Wang, Baoquan Chen

AWARDS & HONORS

- Two Special prizes in RPA Parallel Computing Competition of Chinese Academy of Sciences (200, 000 RMB bonus)
- The First Prize in the 12th Intel Cup Undergraduate Software Innovation Competition (20, 000 RMB bonus)
- Two Second Prizes in Asian Student Supercomputer Challenge (ASC 2018 and 2019)
- The Second Prize in China Undergraduate Mathematical Contest in Modeling
- The First scholarship in Shandong University (Three times)

TECHNICAL SKILLS

Programming Languages: Python, C++/C#, HTML/CSS, Java, JavaScript, SQL, L^AT_EX
Developer Tools: Pytorch, Tensorflow, OpenCV, Blender, three.js, node.js