

Shuquan YE

PERSONAL DATA

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LOOK FOR: research scientist/engineer on ML/CV/AI

INTRODUCTION

I'm currently a senior Ph.D. student at City University of Hong Kong (CityU) in [Visual Computing Laboratory](#) advised by [Dr. Liao Jing](#). My research interests include computer vision and computer graphics, especially in learning strategies, multi-modality(vision/3D+natural language) learning, point cloud/scene/image processing, transformers and pretraining.

EDUCATION

SEP 2019 - AUG 2023 (Expected) Ph.D. Candidate, Department of Computer Science, [City University of Hong Kong](#), fund by Research Tuition Scholarship

SEP 2015 - APR 2019 B.Eng, Elite Program (top 0.4%), Department of Computer Science, [South China University of Technology](#)

PUBLICATIONS

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|-------------|---|
| Preprints | <p>[1] “3D Question Answering”
S. Ye, D. Chen, S. Han, and J. Liao,
in <i>arxiv</i>, 2022</p> |
| Journals | <p>[1] “Exemplar-Based 3D Portrait Stylization ”
S. Ye*, F. Han*, M. He, M. Chai, and J. Liao,
in <i>IEEE Transactions on Visualization and Computer Graphics (TVCG) 2021</i></p> <p>[2] “Meta-PU: An Arbitrary-Scale Upsampling Network for Point Cloud ”
S. Ye, D. Chen, S. Han, Z. Wan, and J. Liao,
in <i>IEEE Transactions on Visualization and Computer Graphics (TVCG) 2021</i></p> |
| Conferences | <p>[1] “Learning with Noisy Labels for Robust Point Cloud Segmentation” Oral paper (3.4% acceptance rate)
S. Ye, D. Chen, S. Han, and J. Liao,
in <i>IEEE International Conference on Computer Vision (ICCV2021)</i></p> <p>[2] “Coherence and Identity Learning for Arbitrary-length Face Video Generation” Oral paper
S. Ye, J. Lin, S. He, C. Han, G. Han and J. Qin,
in <i>25th International Conference on Pattern Recognition (ICPR2020)</i></p> <p>[3] “Two-dimensional-reduction Random Forest”
S. Ye, Z. Yu, J. Lin, K. Yang, D. Dan, Z. Zhan, W. Chen, and Z. Zhang,
in <i>Eighth International Conference on Information Science and Technology</i> , IEEE, June 2018, Cordoba, Spain, 201807.</p> |

RESEARCH EXPERIENCES

[Visual Computing Research Team](#) , City University of Hong Kong

• **3D Question Answering.** We are **the first** to investigate the question answering task in 3D domain (3DQA). Unlike 2D VQA, 3DQA requires both appearance and 3D geometry comprehension ability. First, we propose a novel transformer-based framework “3DQA-TR” with two encoders for appearance and geometry respectively, and a 3D-L Bert to perform both intra-modal and inter-modal fusion of appearance, geometry and linguistic question. Second, we further develop the first 3DQA dataset “ScanQA” with 10K+ questions. It is **the first** large-scale dataset in 3D environments that is **fully human-annotated**. Experiments demonstrate the obvious superiority of our framework over the SOTA. The code and data will be available at [3DQA website](#) to facilitate the research in this direction.

• **Robust Point Cloud Segmentation with Noisy Labels.** We are **the first** to solve a novel task of learning with instance-level noisy labels in real-world point cloud datasets. Considering the spatially variant noise rate problem and the neighbor correlations in point clouds, we propose a noise-rate blind PNAL framework with a novel cluster-wise label correction. Experiments demonstrate the obvious superiority of our framework. Even with 60% noisy labels, our method produces comparable results to the model trained on completely clean data. In addition, we **manually cleaned** the popular but noisy ScanNetV2. Our code and data is available at [PNAL website](#).

• **Arbitrary-Scale Point Cloud Upsampling.** The existing point cloud upsampling methods need to train a specific model for each scale factor. We are **the first** to support continuously upsampling point cloud in arbitrary scale, by proposing a Meta-PU. In our extensive experiments, arbitrary scale Meta-PU even outperforms the SOTAs trained for the specific scale factor. Our code is available at [Meta-PU](#).

• **3D Portrait Stylization.** We are **the first** to solve one-shot 3D portrait style transfer that to generate 3D faces with both the geometry exaggerated and the texture stylized while preserving the original content’s identity. In the first geometric style transfer stage, we use landmark translation to capture geometry style and guide the deformation of the dense 3D face geometry. In the texture stage, we transfer the texture style with a differentiable renderer. Experiments show our superiority over SOTAs. Our code and data is available at [Portrait Style](#).

Computer Vision Lab and Computer Vision Research Team , SCUT

• **Arbitrary-length Face Video Generation.** We are **the first** to solve a novel and challenging task of generating arbitrary-length portrait video while maintaining both face identity and inter-frame coherence. To overcome the synthesis ambiguity of face video, we separately address it from two aspects, face identity synthesis by IA-GAN, and rearrangement by face coherence and interpolation networks. Experimental results demonstrate that our proposed network can generate high quality and identity preserved face video and outperforms the SOTAs.

• **Ship Classification and Statistics System Based on Deep Learning.** We focus on designing a robust Chinese character recognize algorithm for ships in natural scene. It is funded by the National Undergraduate Training Program for Innovation and Entrepreneurship, RMB 15,000.

ACADEMIC ACTIVITIES

- Serve as the reviewer for CVPR 2022.
- Serve as the reviewer for TVCG, TMM, GRSL, Access and so on.
- Tutor for Database System (CS3402) in 2020 - Current.

AWARDS & SCHOLARSHIPS

- 2017, 2018 Student Scholarship in South China University of Technology
- 2017, 2018 Merit Student in South China University of Technology
- 2019, 2020 Postgraduate Studentship (UGC-related research projects)
- 2020, 2022 Postgraduate Studentship (UGC-allocated funds and TA Scheme)
- 2022, 2023 Research Tuition Scholarship
- 2022, 2023 Postgraduate Studentship (Non-UGC funds - Central)

SKILLS

- | | |
|--------------------------|---|
| Languages | English, Mandarin. |
| Programming Languages | Python, Matlab, C#, C++, C, Java, Weka. |
| Deep Learning Frameworks | Pytorch, Tensorflow, Keras. |