

SHUZHAO XIE

(+86) 188-1025-9895 • xiesz99@gmail.com • shuzhaoxie.github.io

RESEARCH INTEREST

Robotics, 3D Vision

EDUCATION

Tsinghua University

Ph.D. Student in Computer Science, Advisor: Zhi Wang

08/2024 – Current

Tsinghua University

M.E. in Computer Technology, Advisor: Zhi Wang

08/2020 – 06/2023

Beijing Normal University

B.S. in Computer Science and Technology

09/2016 – 07/2020

EXPERIENCE

3D Gaussian Splats Compression

Tsinghua SIGS, 10/2023 – Current

Post-training 3D Gaussian Compression via Attribute Transformation

[ECCV '24, ArXiv '24]

- Introduced Octree and RAHT to compress the 3D Gaussians.
- Proposed a block-wise way to quantize attributes and a well-crafted fine-tuning scheme to restore quality.
- Designed a tailored mixed-precision quantization for 3D Gaussians to further enhance the compression quality and implemented a CUDA module to accelerate the quantization process.

Multiple MLaaS Inference

Tsinghua SIGS, 07/2020 – 08/2023

Multicloud-based Analytics

[INFOCOM '22, TMM '24]

- Measured the performance (e.g., accuracy, throughput, and latency) of machine learning inference services (mainly object detection services) on AWS, Azure, Google Cloud, and Alibaba Cloud.
- Found the higher cost but occasionally lower accuracy problem under the multi-cloud environment and solved this NP-hard problem with the combinatorial reinforcement learning algorithm.
- Evaluation results show that our solution decreases the cost by 67% without any sacrifice to accuracy.

Respiratory Sound Classification

Healall, 06/2022 – 12/2024

Robust Training and Deployment

[2 × ICASSP '25]

- Built a cloud service to support the respiratory sound classification model.
- Transferred multiple models to respiratory sound classification, including Glance-and-Gaze, Faster-RCNN, and Conformer.

Deep Learning Model Acceleration

Tencent, 01/2022 – 06/2022

Accelerating CNNs

- Analyzed user data from Hupu and appended TFRecord to reduce the latency of model training.
- Implemented Faster-RCNN and deployed it with LibTorch and CUDA.
- Tested the latency and accuracy of object detection models on PyTorch, ONNX, OpenVino, and TensorRT.

PUBLICATIONS/PREPRINTS

- **Shuzhao Xie**, Weixiang Zhang, Chen Tang, Yunpeng Bai, Rongwei Lu, Shijia Ge, and Zhi Wang, “MesonGS: Post-training Compression of 3D Gaussians via Efficient Attribute Transformation”, **ECCV '24**, [Page] [PDF] [Code]
- **Shuzhao Xie**, Yuan Xue, Yifei Zhu, and Zhi Wang, “Cost Effective MLaaS Federation: A Combinatorial Reinforcement Learning Approach”, **INFOCOM '22**, [Page] [PDF] [Code]

- **Shuzhao Xie**, Yuan Xue, Yifei Zhu, and Zhi Wang, “SkyML: A MLaaS Federation Design for Multicloud-based Multimedia Analytics”, **IEEE Transactions on Multimedia (TMM)** ’24, [PDF]
- Weixiang Zhang, **Shuzhao Xie**, Chengwei Ren, Shijia Ge, Mingzi Wang, Zhi Wang, “Enhancing Implicit Neural Representations via Symmetric Power Transformation”, **AAAI** ’25, [PDF] [Code]
- Chen Tang, Yuan Meng, Jiacheng Jiang, **Shuzhao Xie**, Rongwei Lu, Xinzhu Ma, Zhi Wang, Wenwu Zhu, “RFQuant: Retraining-free Model Quantization via One-Shot Weight-Coupling Learning”, **CVPR** ’24, [PDF]
- Jiajun Song, Jiajun Luo, Rongwei Lu, **Shuzhao Xie**, Bin Chen, Zhi Wang, Wenwu Zhu, “A Joint Approach to Local Updating and Gradient Compression for Efficient Asynchronous Federated Learning”, **Euro-Par** ’24 [PDF]
- Shijia Ge, Weixiang Zhang, **Shuzhao Xie**, Baixu Yan, Zhi Wang, “Lungmix: A Mixup-Based Strategy for Generalization in Respiratory Sound Classification”, **ICASSP** ’25
- Baixu Yan, Shijia Ge, Meizi Lu, Weixiang Zhang, **Shuzhao Xie**, Zhi Wang, “PulmoScan: A Practical Pulmonary Disease Pre-Screening System”, **ICASSP** ’25
- **Shuzhao Xie**, Jiahang Liu, Weixiang Zhang, Shijia Ge, Sicheng Pan, Chen Tang, Yunpeng Bai, Zhi Wang, “SizeGS: Size-aware Compression of 3D Gaussians with Hierarchical Mixed Precision Quantization”, arXiv ’24, [PDF]
- Weixiang Zhang, **Shuzhao Xie**, Shijia Ge, Wei Yao, Chen Tang, Zhi Wang, “Expansive Supervision for Neural Radiance Field”, arXiv ’24, [PDF]
- Xiaojie Li, Chenghao Gu, **Shuzhao Xie**, Yunpeng Bai, Weixiang Zhang, Zhi Wang, “Tuning-Free Visual Customization via View Iterative Self-Attention Control”, arXiv ’24. [PDF]
- Yunpeng Bai, Cairong Wang, **Shuzhao Xie**, Chao Dong, Chun Yuan, Zhi Wang, “TextIR: A Simple Framework for Text-based Editable Image Restoration”, arXiv ’24 [PDF]
- Weixiang Zhang, **Shuzhao Xie**, Chengwei Ren, Siyi Xie, Chen Tang, Shijia Ge, Mingzi Wang, Zhi Wang, EVOS: Efficient Implicit Neural Training via EVolutionary Selector, arXiv ’24, [PDF]
- Yuqi Tan, Xiang Liu, **Shuzhao Xie**, Bin Chen, Shu-Tao Xia, Zhi Wang, WATER-GS: Toward Copyright Protection for 3D Gaussian Splatting via Universal Watermarking, arXiv ’24, [PDF]
- Chenghao Gu, Zhenzhe Li, Zhengqi Zhang, Yunpeng Bai, **Shuzhao Xie**, Zhi Wang, “DragScene: Interactive 3D Scene Editing with Single-view Drag Instructions”, arXiv ’24 [PDF]

TEACHING ASSISTANT

Big Data System (B)

Tsinghua University, 09/2021 – 01/2022

Distributed Machine Learning

Tsinghua University, 09/2024 – 01/2025

SELECTED AWARDS

Bronze Prize, ACM-ICPC Asia Regional Contest (Jiaozuo Station)

2018

Bronze Prize, CCPC Regional Contest (Qinhuangdao Station)

2018

SKILLS

Programming Languages: Python, C/C++, Rust, Bash, XML, Java

Tools and Frameworks: Git, \LaTeX , PyTorch, CUDA, Docker, Spark, Android