

Shiyu Gao

Beijing, China
sibylgao1997@gmail.com

PhD@ICT,CAS

GitHub: SibylGao
Homepage: Shiyu Gao

I'm a **bachelor-straight-to-doctorate** student at Institute of Computing Technology, University of Chinese Academy of Sciences (ICT,UCAS). My research interests lie in the field of 3D vision, especially multi-view stereo, 3D reconstruction (large-scale scenes & human body) and 3D detection.

EDUCATION

PhD of Computer Applied Technology , <i>ICT, University of Chinese Academy of Sciences</i>	Sep.2019 - Present
GPA: 3.4/4.0	
Bachelor of Engineering in Detection Guidance and Control Technology , <i>Harbin Institute of Technology</i>	Sep.2015 - Aug.2019
GPA: 89/100	

EXPERIENCE

3D Perception for Autonomous Driving <i>Internship RD @VIS, Baidu Inc.</i>	Jul.2022-present <i>Beijing, China</i>
<ul style="list-style-type: none">Reproduced Bev Segmentation methods like: CVT [1].Without publication, I wrote blog post to record and demonstrate my thoughts.Reproduced 3D Detection methods like: MonoDETR[2], DSGN++[3] as well as PETR[4].Currently I'm trying camera-aware and depth-aware positional encoding on PETR[4]	
Knowledge Distillation for Vision Transformer <i>Internship researcher @IDL, Baidu Research</i>	Apr.2022-Jul.2022 <i>Beijing, China</i>
<ul style="list-style-type: none">Aligned teacher and student models in a finer grain manner (for example, attention alignment) and going deep with the information flows between different layers for vision transformer based on DeiT[5]Without publication, I wrote a short report to demonstrate my research and some thoughts.	
3D Human Animation Rendering Based on Unreal Engine <i>VR Lab @ICT, CAS</i>	Sep.2021-Mar.2022 <i>Beijing, China</i>
<ul style="list-style-type: none">Captured monocular RGBD images of human body in front of green-screen via a Kinect v2 camera and rendered human body in Unreal Engine based on point cloud input.Code is available at: https://github.com/SibylGao/HumanRendering-UE4.git	
End-to-end Deep Learning Network for Multi-view Stereo <i>VR Lab @ICT, CAS</i>	Sep.2020 - Sep.2021 <i>Beijing, China</i>
<ul style="list-style-type: none">Developed an coarse-to-fine algorithm to construct 3D models of high-resolution multi-view inputs.Obtained state-of-the-art results on both DTU and BlendedMVS datasets.Accepted by CGI2022. Paper available at: https://arxiv.org/abs/2207.12032Code available at: https://github.com/SibylGao/MSVP-MVSNet.git	
Traffic flow simulation & visualisation in Large Scale Evacuation Simulation System <i>RA & Bachelor graduation thesis @ICT, CAS</i>	Feb.2019 - Jun.2019 <i>Beijing, China</i>
<ul style="list-style-type: none">Constructed and visualized geometry and topology model of the road network based on OpenStreetMap and Baidu Map.Given the starting and stopping positions for each vehicle, I planned path for all the vehicle, including macro path using A* Algorithm, fine-grained lane change and static obstacle avoidance.Code is available at: https://github.com/SibylGao/Car-Simulation.git	
Infantry Robot Vision System Design for ROBOMaster Robotics Competition <i>HIT Robotics Team</i>	Jun.2018 - Feb.2019 <i>Harbin, China</i>
<ul style="list-style-type: none">Developed vision system including image grabbing, image pre-processing, digits recognition to make robots recognize the target.Calculated rotation and translation matrix from camera to target by solving PnP Problem.Improved shooting accuracy by adding Kalman Filter to optimize the estimated target position.Code of my part can be found at: https://github.com/SibylGao/Vision-system.git	

SKILLS

Skills	Python, Git, \LaTeX , Matlab, C++
Research	Deep Learning, Computer vision, Computer Graphics, Basic Numerical Analysis, Control Theory
Languages	English (writing and speaking), Chinese

PUBLICATIONS

Cost Volume Pyramid Network with Multi-strategies Range Searching for Multi-view Stereo.(Accepted by CGI2022)	Mar. 2022
CFDS3D: Centroid Feature Diffusion Sampling framework for 3D Object Detection.(Under Review)	Nov. 2022