

Long Wang

+86 17682304525 | wanglongzju@gmail.com
IELTS 6.5

EDUCATION

Zhejiang University Sep 2017 - Jul 2020

M. Sc. Computer Science and Technology, CAD&CG State Key Lab

Supervisor: Prof. Weiwei Xu

Xiamen University Sep 2012 - Sep 2016

B. Sc. Digital Media Technology, Software College

WORK EXPERIENCE

SenseTime, Hangzhou Dec 2021 - Present

Computer Vision Researcher, 3D Vision Department

Leader: Prof. Xiaowei Zhou

Huawei, Hangzhou Jul 2020 - Nov 2021

Algorithm Engineer, AR&VR Department

RESEARCH EXPERIENCE

Dynamic Human Reconstruction and Tracking from a Monocular RGB-D Video Sep 2018 - Dec 2019

My master's thesis mainly focused on capturing and reconstructing non-rigid human motion from a single-depth camera. Inspired by DoubleFusion, I built a system that not only tracks the motion of the human skeleton but also recovers the detail of the human surface. My work included GUI(using OpenGL), data processing(from KinectV2), motion field construction(combined SMPL and Embedded Node Graph), acceleration of derivative calculation(by CUDA), and dynamic volumetric fusion, etc. To improve the robustness and efficiency of our system, I employed a two-step tracking strategy with multi-part dynamic thresholds. Additionally, I implemented CUDA acceleration on an NVIDIA 1080Ti GPU, resulting in 70ms per frame. Please refer to the attachments of the email for visualization.

3D Object Pose Tracking and Estimation Jul 2020 - Present

Now I am working on real-time 6-DoF object pose tracking on mobile devices.

- I mainly focused on optimization-based methods at Huawei. To handle extreme conditions, such as textureless, symmetric, and fast movement, our approach integrated multiple handcrafted features, including region, edge, and keypoint.
- Since I work at SenseTime under the supervision of Professor Xiaowei Zhou, I focus on using neural networks to improve optimization-based methods. We proposed a learning-based active contour model to track 3D objects, which not only outperforms state-of-the-art methods but also achieves real-time performance on mobile devices.

Detailed results and visualizations are provided in the attachments of the email.

Visual Localization Jun 2022 - Present

I also research on long-term visual localization with one of my colleague. In this work, we propose to leverage additional sensors on a mobile phone, mainly GPS, compass, and gravity sensor, to provide decent initial poses and valuable constraints to reduce the searching space in image matching and final pose estimation.

Other Researches

- Implemented a data structure for representing and manipulating geometric and topological attributes of CAD models.
- Accelerated the GraphCut algorithm by CUDA, which creates texture for Mesh.

PUBLICATIONS

Long-term Visual Localization with Mobile Sensors, as the third author, accepted by CVPR2023

Deep Active Contours for Real-time 6-DoF Object Tracking, as the first author, accepted by ICCV2023

SKILLS

Programming Language: C, C++, Cuda, Python, Pytorch, Java, Matlab, etc

Tutorial: Qt, OpenGL, OpenGL ES, GLSL, HLSL, OpenCV, MKL, Colmap, PCL, Eigen, g2o, ceres, etc

Course: numerical analysis, geometric modeling, machine learning, image processing, computer graphics, etc

REFEREES

Prof. Weiwei Xu: xww@cad.zju.edu.cn, <http://www.cad.zju.edu.cn/home/weuweixu/>

Prof. Xiaowei Zhou: xwzhou@zju.edu.cn, <https://xzhou.me/>