XU Lan

5th-year PhD Candidate

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RESEARCH INTERESTS

My goal is to enable **convenient** and **high-quality** performance capture in our daily life!!

- Dynamic scene reconstruction
- Human performance capture
- Machine learning for vision / graphics
- Static scene understanding
- Virtual and augmented reality
- 3D modeling and aerial robot

EDUCATION

10/2018 - 08/2019	Visiting PhD student, GVV Group, Max-Planck-Institute for Informatics Advisor: Professor Christian Theobalt
10/2016 - 02/2018	Visiting PhD student, School of Automation, Tsinghua University Advisor: Professor Yebin Liu
09/2015 - present	PhD candidate in **Robotics**, Robotics Institute, ECE Department, HKUST Advisor: Professor Lu Fang
09/2011 - 06/2015	B.Eng. in **Signal and Communication Engineering**, School of Information and Electronic Engineering, Zhejiang University, 3.93/4.0

JOURNAL PUBLICATIONS

1. **UnstructuredFusion: Realtime 4D Geometry and Texture Reconstruction using Commercial RGBD Cameras**, Lan Xu, Zhuo Su, Lei Han, Tao Yu, Yebin Liu, Lu Fang, *IEEE TPAMI 2019*

2. **FlyFusion: Realtime Dynamic Scene Reconstruction Using a Flying Depth Camera**, Lan Xu, Wei Cheng, Kaiwen Guo, Lei Han, Yebin Liu, Lu Fang, *IEEE TVCG 2019*

3. **FlyCap: Markerless Motion Capture Using Multiple Autonomous Flying Cameras**, Lan Xu, Yebin Liu, Wei Cheng, Kaiwen Guo, Guyue Zhou, Qionghai Dai, Lu Fang, *IEEE TVCG 2018*

4. **Fast Bundle Adjustment for Globally Consistent SLAM**, Lei Han, Lan XU, Dmytro Bobkov, Eckehard Steinbach, Lu Fang, *IEEE Transactions on Robotics TRO, 2018*

CONFERENCE PUBLICATIONS

1. **EventCap: Monocular 3D Capture of High-Speed Human Motions using an Event Camera**, Lan Xu, Weipeng Xu, Vladislav Golyanik, Marc Habermann, Lu Fang and Christian Theobalt, submitted to *CVPR2020*

2. **iHuman3D: Intelligent Human Body 3D Reconstruction using a Single Flying Camera**, Wei Cheng*, Lan Xu*, Lei Han, Yuanfang Guo, Lu Fang, *ACM Multimedia Conference (ACMMM 2019 Oral)*

3. **Beyond SIFT using binary features in loop closure detection**, Lei Han, Guyue Zhou, Lan Xu, Lu Fang, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2017)*

PROJECTS

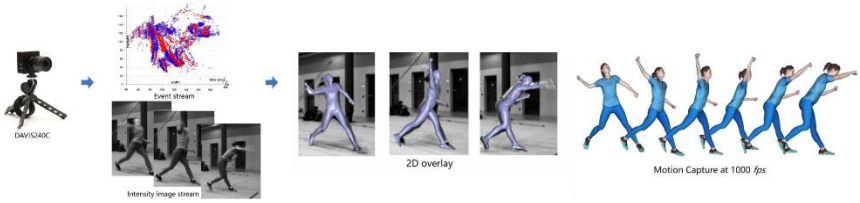
Dynamic Scene Reconstruction using flying cameras

- Autonomous flying camera arrays with active view planning
- Joint non-rigid MoCap and global camera tracking
- Robust reconstruction for topology changes

Real-time Volumetric Capture using Sparse and Unstructured Kinects

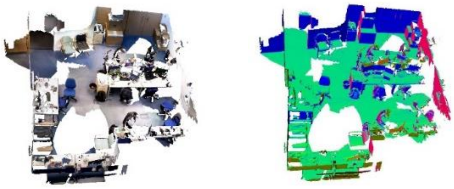
- Real-time capture and streaming system
- Autonomous Online calibration and nonrigid tracking
- Real-time dynamic atlas texturing

Capture Fast Human Motions using an Event Camera



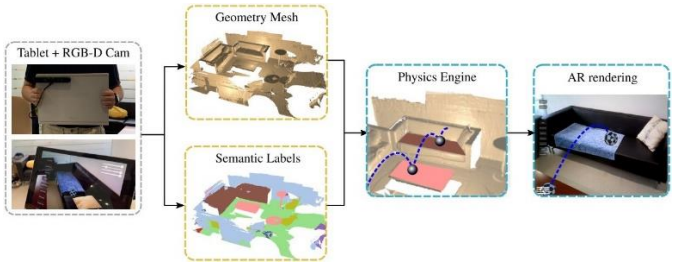
- Monocular and event camera-based 3D human motion capture
- Hybrid asynchronous optimization and refinement
- Fast human motion capture results at 1000 fps

Globally Consistent Indoor Scene Reconstruction



- Robust loop closure detection
- Efficient/Large-scale/Globally-consistent camera localization
- Real-time dense 3D reconstruction on portable devices

Realtime Semantic 3D Perception for Immersive Augmented Reality



- Real-time 3D Reconstruction and Semantic Understanding on a Mobile Device
- First place for 3D Instance Segmentation on Scannet Benchmark

PERSONAL SKILLS

C&C++ programming, CUDA C and PTX, MATLAB, Python, OpenGL, Direct3D ROS, Autodesk Maya, Adobe Photoshop, Adobe Premiere

WORKING EXPERIENCES

05/2014 - 09/2014	Intern at Dept. of iMedia, 2012 Lab, Hangzhou Research Institutes, Huawei
10/2014 - 07/2015	Intern at Dept. of Camera r & d, DJI technology, Shenzhen, China