TIANYOU ZHANG

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PhD candidate with 2+ years of research experience in computer vision and image processing. Skilled in pose estimation, depth sensing, 3D reconstruction, and deep learning. Seeking a PhD position to continue research in computer vision and 3D perception.

⚙ SKILLS

- Computer vision algorithms: pose estimation, depth prediction, 3D reconstruction, feature extraction
- Programming: Python, C++, MATLAB
- Frameworks and Libraries: PyTorch, OpenCV, CUDA, openGL
- Academic writing and presentation
- Fluent in English and Mandarin

🏛 EDUCATION

Beihang University   Sep 2021 – Jan 2024(expected)

M.S. in Instrument Science and Technology, Key Laboratory of Precision Opto-mechatronics Technology

- GPA: 3.81 / 4
- Relevant Coursework: Optimization Method(99), Multiple View Geometry in Computer Vision(94), Intelligence Sensing and Autonomous System(93)

Beihang University   Sep 2017 – Jul 2021

B.S. in Instrument Science and Technology

- GPA: 3.72 / 4
- Relevant Coursework: Automatic Control Theory(94), Engineering Optics(93), Digital Electronics Technology(97)

👥 EXPERIENCE

6-DoF Pose Estimation and Stereo Depth Estimation   Sep 2021 – Present

Python, PyTorch   Laboratory Projects

- Proposed a novel approach introducing depth information to support surface normals for 6D pose estimation because it integrates 3D scale information and directly suggests objects' positions in the scene. Reached 95.79% in ADD(-S) 0.1d on the LineMOD dataset, outperforming the baseline (GDR-Net) at 93.7%.
- Established a non-ideal binocular stereo measurement system and built a measurement error model to instruct depth estimation. Introduced image super-resolution method to key points extraction and matching tasks, which resolves the feature matching problem of binocular images in different scales.

Expected Publication:
Rethinking Depth and Surface Normals in 6D Pose Estimation

——Under Submission
First Author

Multi-view Images Features Extraction and Reconstruction   Mar 2020 – Jan 2021

Python, PyTorch   Undergraduate Researcher

- Extracted essential aeroplane structures from single RGB images and reconstructing the structures from three views. Inspired by human pose estimation, the aeroplanes' critical structures are regarded as human skeletons and annotate them in the way of human pose estimation. In the reconstruction process, multiple view geometry was applied in features fusion and got an error at 1.469% in a novel-defined Mean Per Structure Position Error(MPSPE).

📒 Publication

3D Reconstruction of Aircraft Structures via 2D Multi-view Images

Zhang, Tianyou ; Fan, Runze ; Zhang, Yu ; Feng, Guangkun ; Wei, Zhenzhong

🎓 Honours and Awards

Beihang University Merit Student	2018, 2019
Beihang University Second Prize Scholarship	2018, 2019, 2021
Beihang University Excellent Student Cadre	2017, 2018