Adaptive Matching Window and Depth Consistency Checking Based High-quality 3D Reconstruction of Buildings from Drone Images

Background

3D Reconstruction of Buildings

Problems of texture-less material & glass reflection

Proposals

Framework

Images Camera poses

Reference image selection

Stereo matching

P1: Adaptive matching window

P2: Depth consistency checking

3D triangulation

3D points

Experiment result

Sequence 1: Original P1 P2 P1+P2 Original

Sequence 2: Original P2 Original

Sequence 3: Original

Sequence 4: Original

Conclusion

Proposed adaptive matching window and depth consistency checking to achieve higher reconstruction quality of buildings, get smoother at texture-less material while keeping detailed structures and smooth deformations caused by glass reflections.