KAI CHEN

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No.129 Luoyu Road, Hongshan District, Wuhan, Hubei, P.R. China
+86 151 7233 2278 · chenkai@whu.edu.cn · https://leo94-chen.github.io/

EDUCATION

M.Eng. in Photogrametry and Remote Sensing, **Wuhan University** August 2016 - June 2019
- Adviser: Prof. Jian Yao
- Research Interests: Computer Vision, Image and Video Processing
- GPA: 87.6/100

B.Eng. in Remote Sensing Science and Technology, **Wuhan University** August 2012 - June 2016
- Thesis: Panorama Completion Based on Graph Cuts Optimization
- Excellent Bachelor's Degree Thesis of Hubei Province
- GPA: 3.84/4.00 (Top 3%)

RESEARCH EXPERIENCE

Image Completion September 2015 - July 2016
- Designed a unified framework for 360° panorama completion.

Affine Image Rectification July 2016 - May 2017
- Rectified image tilt distortion with features in the frequency domain.
- Proposed an efficient tilted image completion algorithm based on image affine rectification.

Image and Video Blending May 2017 - August 2017
- Evaluated performance of different blending algorithms, including: Multi-band blending, poisson blending, mean value coordinate blending, pyramid convolution blending, etc.
- Designed an effective framework for video blending.

Image and Video Stitching December 2017 - Present
- Proposed a robust stitching algorithm by combining multiple constraints into a generalized content-preserving warp framework.
- Designed a motion model for effective video stitching.
- Designed a vanishing-point guided algorithm for natural image stitching.

3D Reconstruction and Stereo Matching December 2018 - Present
- Proposed the DMG-Net for mesh model reconstruction from discrete-view RGB images.
- Designed a guided hierarchical CNN architecture for high quality stereo matching.

PUBLICATIONS

CONFERENCE

1. Haoang Li, Ji Zhao, Jean-Charles Bazin, Wen Chen, **Kai Chen**, and Yunhui Liu. "Line-based Absolute and Relative Camera Pose Estimation in Structured Environments", The 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019), Accepted.
2. Bin Tan, **Kai Chen**, and Jian Yao. "GHR-Net: Guided Hierarchical Refinement Network for Stereo Matching", The 26th IEEE International Conference on Image Processing (ICIP 2019), Accepted.
3. **Kai Chen**, Jian Yao, Binbin Xiang and Li Li. "Multiple Combined Constraints for Image Stitching", The 25th IEEE International Conference on Image Processing (ICIP 2018), Accepted.
4. **Kai Chen**, Jian Yao, Binbin Xiang and Jingmin Tu. "Video Stitching with Extended-MeshFlow", The 24th IEEE International Conference on Pattern Recognition (ICPR 2018), Accepted.

5. **Kai Chen**, Jian Yao, Menghan Xia, Xinyuan Gui, Li Li and Xiaohu Lu. "A Unified Blending Framework for Panorama Completion via Graph Cuts", The XXIII ISPRS Congress, 2016, Accepted.

JOURNAL

1. **Kai Chen**, Jingmin Tu, Jian Yao, and Jie Li. "Generalized Content-Preserving Warp: Direct Photometric Alignment beyond Color Consistency", IEEE Access, 6:69835-69849, 2018.
2. **Kai Chen**, Jian Yao, Jingmin Tu, Xiaohu Lu, Yinxuan Li and Li Li. "Vanishing Point Guided Natural Image Stitching", Submitted to IEEE Transactions on Image Processing, 2019.

INVENTION PATENTS

1. Jian Yao, **Kai Chen**, Li Li, Menghan Xia and Renping Xie. "A Method and Unified System for Panorama Completion via Graph Cuts", Authorization Number: ZL 201610268428.3, 2016.
2. Jian Yao, **Kai Chen** and Jinjie Zhao. "An Online Video Stitching Method Based on MeshFlow", 2018, Under review.

AWARDS & SCHOLARSHIPS

1. Second Prize Scholarship for undergraduates — September 2013
2. First Prize Scholarship for undergraduates — September 2014
   · Top 6%
3. Wang Zhizhuo Innovative Talent Award — October 2014
   · 2 out of 254 competitors won this award
4. Second Prize Scholarship for undergraduates — September 2015
5. Outstanding Undergraduate Graduate of Wuhan University — June 2016
6. Excellent Bachelor's Degree Thesis of Hubei Province — July 2016
   · Rank 1st among 254 graduates
7. First Prize Scholarship for postgraduates — September 2017
   · Top 5%

TECHNICAL SKILLS

Programming Languages

C&C++, Python, MATLAB, CMake

Tools and Software Skills

OpenCV, PyTorch, Eigen, Ceres, Qt, CGAL

Others

LaTeX, can write well organized paper