



Wenkai Ye

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Research Interests

- 3D Reconstruction, Structure from Motion
- Online Binary Feature Learning
- Motion Detection and Tracking
- Visual Odometry / Simultaneous Localization and Mapping
- Pattern Recognition and Classification, Clustering
- Hash-based Fast Similarity Search

Education

Tongji University, Shanghai

09/2013 -- present

Ph.D. student, Photogrammetry and Remote Sensing, College of Surveying and Geo-informatics

Georgia Institute of Technology, Atlanta

08/2017 – present

M.S., Computer Science, specialization in Computational Perception and Robotics

Georgia Institute of Technology, Atlanta

02/2017 -- present

Visiting scholar, research focuses on hashing applications in SLAM under dynamic environment

Tongji University, Shanghai

09/2009 -- 06/2013

B.E., Survey and Mapping Engineering, College of Surveying and Geo-informatics

Research & Project Experience (selected)

Research Assistant on Project “**As-Built Modeling of the Physical World Using Video**”, supported by the US National Science Foundation (Grant No. 1031329) **11/2016 – present**

- Hashing Applications in SLAM-related Issues
- Loop-Closure Detection under Dynamic Environment
- Online Binary Feature Learning
- Hololens Development Associated with SLAM Issues

Research Assistant on Project “**Precise Quantitative Study of Mechanisms of Polar Ice and Sea-level Change of Global and Typical Areas Over the Past Century**”, supported by the National Key Basic Research Program of China (973 Program, Grant No. 2012CB957700) **09/2014 – 10/2016**

- 3D Surface Reconstruction (Dense Matching & Structure from Motion)
- Object Identification and Classification Based on Multi-Source Remote Sensing Data

Research Assistant on Project “**Key Technologies of Remote Sensing Products Validation and Experimental Verification**”, supported by the National High Technology Research and Development Program of China (863 Program, Grant No.2012AA12A305) **09/2013 – 06/2015**

- 3D Surface Reconstruction (Dense Matching & Structure from Motion)
- Glacier Motion Detection and Tracking (Featured-Based Matching)

Software Developer on Projects “**Automatic Train Plate Recognition System Development**” and “**The Nanjing Yangtze River Bridge Vessel Monitoring and Warning System Development**” supported by the Shanghai Railway Bureau of China **11/2013 -- 05/2014**

- Train Plate Detection and Plate Number Recognition
- Approaching Vessel Detection and Tracking

Publications (selected)

Wenkai Ye, Gang Qiao, Fansi Kong, *et al.*, Improved geometric modeling of 1960s KH-5 ARGON satellite images for regional Antarctic applications. *Photogrammetric Engineering and Remote Sensing*, 2017, 83(7):477-491.

Rongxing Li, **Wenkai Ye**, Gang Qiao, *et al.*, A new analytical method for estimating Antarctic ice flow in the 1960s from historical optical satellite imagery. *IEEE Transactions on Geoscience and Remote Sensing*, 2017, 55(5):2771-2785.

Wenkai Ye, Gang Qiao, Fansi Kong, *et al.*, Rigorous geometric modelling of 1960s ARGON satellite images for Antarctic ice sheet stereo mapping. *ISPRS Annals of Photogrammetry, Remote Sensing & Spatial Information Sciences*, 2016, 3(3):147-151.

Rongxing Li, **Wenkai Ye**, Fansi Kong, *et al.*, A novel method for estimation of glacier surface motion in 1960s from ARGON KH-5 optical imagery. *ISPRS Archives of Photogrammetry*, 2016, XLI-B8: 521-524.

Wenkai Ye, M Scaioni, Fansi Kong, *et al.*, Three-Dimensional Modelling of Antarctic Glaciers from Declassified Satellite Photographs in the 60's. *Internationale Geodätische Woche Oberurgl*, 2015.

Wenkai Ye, Guancong Zhang, Patricio A. Vela, HOLD: A Hedging Approach to Learn Binary Features Online from Motion Dynamics for Loop-Closure Detection, submitted to *IEEE Transaction on Robotics*, 2018.

Conference Presentations (selected)

2016 **Wenkai Ye**, Gang Qiao, Fansi Kong, *et al.* Rigorous geometric modelling of 1960s ARGON satellite images for Antarctic ice sheet stereo mapping. **Oral presented** at the XXIII ISPRS Congress 2016, Prague, Czech Republic.

2015 **Wenkai Ye**, Fansi Kong, Gang Qiao, *et al.* Research on Antarctic ice velocity mapping based on multi-source remote sensing data. **Oral presented** at the Annual Meeting of Chinese Geoscience Union 2015, Beijing, China.

2014 **Wenkai Ye**, Gang Qiao, Xiaohua Tong, *et al.* Evaluation of the Antarctic Ice Sheet Changes by Rigid 3D Modeling using 1960s DISP Images. **Oral presented** at the 19th Conference of Remote Sensing of China, Xian, China.

2016 **Wenkai Ye**, Rongxing Li, Gang Qiao, *et al.* Surface Speed Estimation of Rayner Glacier in 1960s from Stereo ARGON Imagery. **Poster presented** at the International Glaciological Society (IGS) Symposium 2016, La Jolla, California, USA.

2014 Gang Qiao, **Wenkai Ye**, M Scaioni, *et al.* DISP images for regional Antarctic ice-sheet change estimation since 1960s. **Poster presented** at the International Symposium on Contribution of Glaciers and Ice Sheets to Sea Level Change, Chamonix, France.

Honors & Awards (selected)

Sep 2017 National Scholarship for Graduate Students

Nov 2015 The National Postgraduate Mathematics Contest in Modeling “Second Prize”

Oct 2015 “Outstanding Student Paper Award” of the Annual Meeting of Chinese Geoscience Union 2015

Sep 2014 “Young Author Best Paper Award” of the 19th Conference of Remote Sensing of China

Oct 2014 ZJIC Scholarship provided by the Zhejiang Provincial Institute of Communications Planning, Design & Research

Oct 2013 Liu Dajie Scholarship (2/63, a scholarship named after a late Chinese well-known photogrammetry expert)

Jun 2013 “Excellent Graduates” Award of Tongji University, “Excellent Graduates” Scholarship

2010-2013 Outstanding Student Scholarship of Tongji University, 3 times

Technical Skills

- Languages: C/C++, Python, Matlab, C#.NET, Unix Shell Scripting, ASP.NET, SQL, LaTeX
- Parallel Programming: OpenMP, multi-threaded systems
- Programming Environments: Qt Creator, Visual Studio, PyCharm
- Familiar with: OpenCV, Eigen, ROS, DBow3, g2o, PCL
- Operating System: Linux, Windows