



BOYING LI

Robotics, 3D computer vision, Visual SLAM, Deep learning
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EDUCATION

Shanghai Jiao Tong University

Sep 2016 - Now

Ph.D. in Information & Communication Engineering

Northwestern Polytechnical University

Aug 2012 - Jun 2016

B.S. in Automation

National Scholarship for 2 times: Top 2%

PUBLICATIONS

- **Boying Li**, Danping Zou, Daniele Sartori, Ling Pei and Wenxian Yu, "TextSLAM: Visual SLAM with Planar Text Features." *2020 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE, 2020: 2102-2108.
- **Boying Li***, Yuan Huang*, Zeyu Liu, Danping Zou and Wenxian Yu, "StructDepth: Leveraging the structural regularities for self-supervised indoor depth estimation." *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)*. 2021: 12663-12673.
- **Boying Li**, Danping Zou, Yuan Huang, Xinghan Niu, Ling Pei and Wenxian Yu, "TextSLAM: Visual SLAM with Semantic Planar Text Features." (Major revision). *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*.
- **Boying Li**, Bin Liu, Weiwei Guo, Zenghui Zhang and Wenxian Yu, "Ship Size Extraction for Sentinel-1 Images Based on Dual-Polarization Fusion and Nonlinear Regression: Push Error Under One Pixel." *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2018, 56(8): 4887-4905.
- **Boying Li**, Bin Liu, Lanqing Huang, Weiwei Guo, Zenghui Zhang and Wenxian Yu, "OpenSARShip 2.0: A large-volume dataset for deeper interpretation of ship targets in Sentinel-1 imagery." *2017 SAR in Big Data Era: Models, Methods and Applications (BIGSAR DATA)*. IEEE, 2017: 1-5.
- **Boying Li**, Bin Liu, Weiwei Guo, Zenghui Zhang and Wenxian Yu, "Ship Geometric Information Extraction for Sentinel-1 Dual-Polarization Images." *Science & Technology Review*, 2017, 35(20): 94-101.
- Lanqing Huang, Bin Liu, **Boying Li**, Weiwei Guo, Wenhao Yu, Zenghui Zhang and Wenxian Yu, "OpenSAR-Ship: A dataset dedicated to Sentinel-1 ship interpretation." *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 2017, 11(1): 195-208.
- Lanqing Huang, **Boying Li**, Bin Liu, Weiwei Guo, Zenghui Zhang and Wenxian Yu, "Ship Characterization and Analyses in Sentinel-1 Imagery Based on a Large and Open Dataset." *Advances in SAR Remote Sensing of Oceans*. CRC Press, 2018: 177-212.

ACADEMIC EXPERIENCES

Deep Learning in 3D Computer Vision

2020 - Now

Personal Research

- Self Supervised Indoor Depth Estimation with Scene Structural Regularities & Semantic Information.
- 3D Scene Reconstruction with Neural Radiance Fields (NeRF) using Semantic & Geometric Messages.

Semantic Visual SLAM with Geometric Regularity

2018 - Now

Personal Research

- TextSLAM: Propose the first Visual SLAM System with Text Features Tightly Coupled.
- In TextSLAM, Propose a Novel Parameterization & a Novel Photometric Error for the Text Features.
- In TextSLAM, Propose a Semantic Loop Closure based on Scene Text Objects.
- Establish a Novel SLAM & Visual Localization Dataset with Rich Semantics for the Evaluation.

Synthetic Aperture Radar (SAR) Imagery Interpretation

2016 - 2018

National Natural Science Foundation Key Project

- **Algorithm:** Propose a Novel Ship Size Extraction Method and Achieve the Best Performance among the World (4 Times Better than State-of-the-art Accuracy).
- **Dataset:** Build 2 SAR Ship Datasets & 1 SAR Landcover Dataset. Establish Ship Elaborate Labels for the Two SAR Ship Datasets.
- **Dataset Assessment:** Analyse the SAR polarization Characteristics based on SAR Ship datasets.

WORK/VOLUNTEER EXPERIENCES

Shanghai Jiao Tong University

2018 - Now

- Teaching Assistant for 3S (RS, GPS, GIS) Technique Courses for 2 Years.
- Chief Umpire of the 2nd National Unmanned Aerial Vehicle Intelligent Sensing Technology Competition.
- Popular Science Introduction of Unmanned Aerial Vehicle, Navigation and Computer Vision for teenagers.

Northwestern Polytechnical University

2012 - 2016

- Vice-Minister of the Propaganda Department in the Broadcasting Station of the University News Center.
- Volunteer Teacher & Donate Books for the Children in Remote Villages.

MAIN HONORS

Shanghai Jiao Tong University

2016 - Now

- Second Prize of National Post-Graduate Mathematical Contest in Modeling.
- The Scholarship of Zhou Weigan & Ren Yuehua

Northwestern Polytechnical University

2012 - 2016

- National Scholarship (2 times), Top 2%.
- First Prize Award of Northwestern Polytechnical University (2 times), Top 2%.
- Outstanding Student of Northwestern Polytechnical University (2 times), Top 2%.
- Outstanding Graduate of Northwestern Polytechnical University.
- Outstanding Dissertation for Bachelor Degree of Northwestern Polytechnical University.
- Third Prize of National Mathematics China mathematics modeling network Challenge.
- Third Prize of National Innovation Creativity Entrepreneurship.

TECHNICAL STRENGTHS

Languages	English Grade CET-6
Computer Languages	Matlab, CPP, Python
Frameworks	PyTorch, ROS