BOYING LI

https://leeby68.github.io/ liboying.fhyt@sjtu.edu.cn
Shanghai Jiao Tong University, Shanghai, China. +(86) 15809215299

Computer vision, Robotics, Visual SLAM, Machine learning

EDUCATION

Shanghai Jiao Tong University, China *Sep 2016 - Jun 2023*
Ph.D. in Information & Communication Engineering
Outstanding Graduate of Shanghai Jiao Tong University

Northwestern Polytechnical University, China *Sep 2012 - Jun 2016*
B.S. in Automation
National Scholarship (Year 2013-2014 and Year 2014-2015), Top 2%

PUBLICATIONS

- **Boying Li**, Danping Zou, Yuan Huang, Xinghan Niu, Ling Pei and Wenxian Yu, TextSLAM: Visual SLAM with Semantic Planar Text Features." Submitted to *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)* – Under Review, Major revision.
- **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, Daniele Sartori, Ling Pei and Wenxian Yu, "TextSLAM: Visual SLAM with Planar Text Features." *IEEE International Conference on Robotics and Automation (ICRA). 2020: 2102-2108.*
- **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." *SAR in Big Data Era: Models, Methods and Applications (BIGSARDATA). 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, "OpenSARShip: 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*
Research

· **StructDepth: the Self Supervised Depth Estimation Leveraging Indoor Structural Regularities.**
· In StructDepth, Propose Two Extra Supervisory Signals: the Manhattan Normal and the Co-planar Constraint.
· In StructDepth, Propose Two Self Supervised Components to Generate Supervisory Signals: Manhattan Normal Detection and Planar Region Detection.

· StructDepth Outperforms the State-of-the-art Methods.

Visual SLAM with Semantic and Geometric Priors *2018 - Now*
Research

· **TextSLAM: the First Visual SLAM System with Text Features Tightly Coupled.**
· Implemented a Visual SLAM System from Scratch as the Core Pipeline.
· In TextSLAM, Propose a Novel Parameterization & a Novel Photometric Error for the Text Features.
· In TextSLAM, Propose a Semantic Loop Closing based on Scene Text Objects.
· TextSLAM Outperforms the State-of-the-art Methods including SLAM and Visual Localization.
· **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 in 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.

VOLUNTEER EXPERIENCES

· **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.

MAIN HONORS

· Outstanding Graduate of Shanghai Jiao Tong University.
· Second Prize of National Post-Graduate Mathematical Contest in Modeling.
· The Scholarship of Zhou Weigan & Ren Yuehua
· National Scholarship (Year 2013-2014 and Year 2014-2015), Top 2%.
· First Prize Award of Northwestern Polytechnical University (Year 2013-2014 and Year 2014-2015), Top 2%.
· Outstanding Student of Northwestern Polytechnical University (Year 2013-2014 and Year 2014-2015), 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	fluent in English, CET-6
Computer Languages	Matlab, CPP, Python
Frameworks	PyTorch, ROS

REFERENCES

Prof. Danping Zou
Shanghai Jiao Tong University
Shanghai, China
dpzou@sjtu.edu.cn
https://drone.sjtu.edu.cn/dpzou/

Prof. Wenxian Yu
Shanghai Jiao Tong University
Shanghai, China
wxyu@sjtu.edu.cn
https://www.researchgate.net/profile/Wenxian-Yu

Prof. Zhaopeng Cui
Zhejiang University
Hangzhou, China
zhpcui@zju.edu.cn
https://zhpcui.github.io/