

Curriculum Vitae

Zongzhou Wu

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Profile: <https://zzwu29.github.io>, Blog: <https://zzwu29.github.io/blog/>

Education

- M.Eng., Geodesy and Survey Engineering, Wuhan University, 2021 - now (Supervisor: Prof. Xingxing Li, GPA: 3.60/4.0, Score: 91/100)
- B.Eng., Navigation Engineering, Wuhan University, 2017 - 2021 (GPA: 3.91/4.0, Score: 92.4/100, Ranking: 2/50)

Internship

- Algorithm Internship Student, DJI Automotive, Shenzhen, China, May 2023 - Sep. 2023

Research Experience

Interest

- Global Navigation Satellite System (GNSS), Indoor-Outdoor Seamless Positioning
- Multi-sensor Fusion, Simultaneous Localization and Mapping (SLAM), Sensor Calibration

Project

- Joint development in GREAT (GNSS+ REsearch, Application and Teaching) software, 2020 - now
- Sensor-failure resilient tightly coupled fusion of GNSS/IMU/UWB/camera, 2021 - 2022
- Online spatial/temporal calibration of GNSS/Multi-IMU/camera system, 2021 - 2022
- Seamless indoor-outdoor localization based on GNSS/IMU/UWB, 2021 - 2022
- Real-time multi-frequency and multi-GNSS PPP-AR/IMU tightly coupled integration, 2020 - 2021
- Low orbit satellite augmented navigation visualization interactive demonstration system, 2018 - 2020

Teaching

- Assistant, Best Estimation (Lecturer: Prof. Yun Wu, Undergraduate Course in Spring 2022)

Contribution to Community

compareNavPlot <https://github.com/zzwu29/compareNavPlot>

- A Pyside2 UI for comparing and plotting integrated navigation information.

traj_eval https://github.com/zzwu29/traj_eval

- A toolbox to process trajectory alignment in localization/SLAM results.

bag_scripts https://github.com/zzwu29/bag_scripts

- A convenient python script to extract GNSS, imu, UWB, image, and truth records from rosbag.

SuperPointCPP <https://github.com/zzwu29/SuperPointCPP>

- An implement of SuperPoint feature detector in C++.

Skill

Knowledge

- GNSS High-precision Positioning (RTK, PPP, and PPP-RTK)
- Tightly-coupled Sensor Integration (GNSS/IMU/UWB/camera/LiDAR)
- State Estimation (KF, EKF, UKE, PF, and FGO)
- Sensor Calibration (IMU noise, and visual-inertial spatial/temporal extrinsic)
- Indoor Localization (UWB range-based, WiFi fingerprint-based, and magnetic-based)
- Inertial Navigation (mechanization-based, and pedestrian dead reckoning)
- Automatic Control, Digital Signal Processing, Signals and Systems, Embedded System

Programming

- C++, C, MATLAB, Python, R, Shell, autolisp

Tool

- Linux, Git, ROS, \LaTeX , Word, Powerpoint, Excel

Language

- Mandarin (native), English (fluent), Cantonese (basic)
- IELTS Academic 7.0

Award and Honor

- The First-class Scholarship, Wuhan University, 2023
- The First-class Postgraduate Freshmen Scholarship, Wuhan University, 2023
- The Second-class Scholarship, Wuhan University, 2022
- The Third Prize of The 7th Internet+ Competition in Wuhan University, Wuhan University, 2021
- Outstanding Undergraduate Graduate, Wuhan University, 2021
- Guanghua Scholarship, Wuhan University, 2021
- The Second-class Scholarship, Wuhan University, 2020
- Merit Student, Wuhan University, 2020
- Honorable Mention of Mathematical Contest in Modeling, The Consortium for Mathematics and Its Application, 2020
- The Third Prize of Asia and Pacific Mathematical Contest in Modeling, Beijing Society of Image Graphics, 2019
- Zhizhuo Wang Innovative Scholarship, Wuhan University, 2019
- The First-class Scholarship, Wuhan University, 2019
- Merit Student, Wuhan University, 2019
- The Third Prize of Jingtian Cup (Automatic Driving Group) in World Robotics Competition, Chinese Mechanical Engineering Society, 2019
- The Third Prize of RoboCup China Open (Standard Platform Group), Chinese Association of Automation, 2019
- The First Prize of National Undergraduate Mathematics Competition, Chinese Mathematical Society, 2018
- The First Prize of Hubei Undergraduate Mathematics Competition, Hubei Mathematical Society, 2018
- Advanced Individual of Summer Social Practice, Wuhan University, 2018
- The Second-class Scholarship, Wuhan University, 2018
- Merit Student, Wuhan University, 2018

Leadership

- Minister of the Interior, WHUAI Team, Wuhan University, 2019 - 2020
- Deputy Minister of Arts, Student Union of School of Geodesy and Geomatics, Wuhan University, 2018 - 2019

Reference

- Prof. Xingxing Li, School of Geodesy and Geomatics, Wuhan University (Email: xxli@sgg.whu.edu.cn)
- Prof. Yun Wu, School of Geodesy and Geomatics, Wuhan University (Email: ywu@sgg.whu.edu.cn)

Publication

Journal Article

1. Z. Shen, X. Li*, X. Li, Z. Xu, Z. Wu and Y. Zhou, "Precise and robust IMU-centric vehicle navigation via tightly integrating multiple homogeneous GNSS terminals," *IEEE Transactions on Instrumentation and Measurement*, early access. [link](#)
2. X. Li, Z. Wu, Z. Shen*, Z. Xu, X. Li, S. Li and J. Han, "An indoor and outdoor seamless positioning system for low-cost UGV using PPP/INS/UWB tightly coupled integration," *IEEE Sensors Journal*, vol. 23, no. 20, pp. 24895-24906, Oct. 2023. [link](#)
3. X. Li, J. Han, X. Li*, J. Huang, Z. Shen and Z. W, "A grid-based ionospheric weighted method for PPP-RTK with diverse network scales and ionospheric activity levels," *GPS Solutions*, vol. 27, no. 4, p. 191, Oct. 2023. [link](#)
4. C. Long, Z. Wu* and Z. Shen, "UWB enhanced GNSS precise point positioning based on raw measurements," *Navigation Positioning and Timing*, early access. [link](#)
5. Z. Xu, Z. Yan, X. Li*, Z. Shen, Y. Zhou, Z. Wu and X. Li, "Review of high-precision multi-sensor integrated positioning toward intelligent driving," *Navigation Positioning and Timing*, vol. 10, no. 3, p. 1, May 2023. [link](#)