

王彬

简介

男，汉族，1988年11月生，安徽合肥人，工学博士，学科教授，硕士研究生导师，中国测绘学会大地测量与导航专委会委员，江苏省“青蓝工程”优秀青年骨干教师培养对象。现担任测绘科学与技术学院党委委员、院长助理兼测绘工程系主任。主要从事现代测量数据处理理论及其应用方面的研究，在广义整体最小二乘、测量粗差处理、点云数据处理、遥感影像处理等方面取得了一系列研究成果。发表SCI/EI论文30余篇，其中第一或通讯作者SCI论文15篇（中科院1区6篇），入选F5000中国精品科技期刊顶尖学术论文1篇，获授权发明专利2项。主持包括国家自然科学基金面上项目在内的纵横向课题8项。参与了中国新一代高精度数字高程基准构建项目，作为主要完成人获2019年国家科技进步一等奖。



学习和工作经历

2006.09–2010.06，安徽理工大学，测绘工程专业，本科

2010.09–2013.06，中国矿业大学，大地测量学与测量工程专业，硕士，导师：高井祥教授

2013.09–2017.06，武汉大学，大地测量学与测量工程专业，博士，导师：李建成院士

2015.11–2016.11，德国斯图加特大学，大地测量学专业，访学

2017.12–2021.10，南京工业大学，测绘科学与技术学院，讲师

2021.10至今，南京工业大学，测绘科学与技术学院，副教授

2026.01至今，南京工业大学，测绘科学与技术学院，学科教授

主要研究领域

现代测量数据处理理论及其应用；点云数据处理；遥感影像处理

教学情况

- 本科生课程：《误差理论与测量平差基础》、《Advance in Geomatics Engineering》
- 研究生课程：《测量数据处理理论与方法》

招生领域及方向

现代测量平差的基础理论与应用；点云数据处理；InSAR数据处理；遥感影像处理

联系方式

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学术兼职

- 中国测绘学会大地测量与导航专业委员会委员
- 苏港澳遥感与环境专业联盟委员
- 江苏省测绘地理信息学会学术工作委员会委员
- *ISPRS Journal of Photogrammetry and Remote Sensing*、*Pattern Recognition*、*Expert Systems with Applications*、*Measurement*、*Mathematical Geosciences*、*Measurement Science and Technology*、*Physica Scripta*、*International Journal for Numerical Methods in Engineering*、*Acta Geodaetica et Geophysica*、*Survey Review* 等SCI期刊的审稿人

主要荣誉与奖励

- 国家科学技术进步奖一等奖（中国高精度数字高程基准建立的关键技术及其推广应用，个人排名 6/15），2019
- 江苏省“青蓝工程”优秀青年骨干教师培养对象，2025
- 卫星导航定位教学成果奖特等奖（强基赋能、融合创新，卫星导航定位人才培养改革与实践，个人排名 6/6），2024

科研项目

- 国家自然科学基金面上项目：非线性高斯-赫尔默特模型参数估计理论的拓展及其应用（42474044），2025.01-2028.12，主持
- 国家自然科学基金青年基金项目：广义整体最小二乘的理论拓展及其在测绘数据处理中的应用（42004002），2021.01-2023.12，主持
- 江苏省自然科学基金青年基金项目：广义整体最小二乘的若干拓展算法及其应用研究（BK20180720），2018.07-2021.06，主持
- 自然资源部国土卫星遥感应用重点实验室开放基金重点项目：融合多源遥感数据的大型水域水资源估算和预测模型研究（KLSMNR-K202204），2022.11-2024.10，主持
- 横向项目：多轨道 InSAR 形变结果自动化平差算法研发，2022.08-2023.04，主持
- 横向项目：沉降隐患区识别软件技术开发服务，2023.10-2023.12，主持
- 横向项目：北斗嵌入式开发与飞控二次开发服务，2025.05-2025.12，主持
- 地球空间环境与大地测量教育部重点实验室基础研究基金：非线性整体最小二乘的拓展算法及其应用研究（19-01-07），2020.01-2021.12，主持
- 国家自然科学基金面上项目：基于三维激光扫描/SLAM 的地下受限空间整体变形监控研究（41974214），2020.01-2023.12，参与
- DAAD 国际合作研究项目：Modern Geodetic Space Techniques for Global Change Monitoring（57173947），2015.01-2020.12，参与

学术论文

第一作者/通讯作者论文：

- [1] **Wang B**, Zhao Z*, Zhou T, Lin P. (2026). Sensitivity analysis-based data snooping for general symmetric transformation of 3-D point sets. *Measurement*, 271, 120886. (SCI, 中科院2区)
- [2] **Wang B**, Zhao Z, Wang S*, Yu J*, Chen Y. (2024). Robust LS-VCE for the nonlinear Gauss-Helmert model: case studies for point cloud fitting and geodetic symmetric transformation. *IEEE Transactions on Geoscience and Remote Sensing*, 62, 4701413. (SCI, 中科院1区)
- [3] **Wang B**, Zhao Z, Chen Y*, Yu J. (2023). A novel robust point cloud fitting algorithm based on nonlinear Gauss-Helmert model. *IEEE Transactions on Instrumentation and Measurement*, 72, 1002012. (SCI, 中科院2区)
- [4] **Wang B**, Yu J*, Chen Y, Zhao Z, Liu C. (2022). Efficient and robust solution to universal symmetric transformation for 3D point sets. *IEEE Transactions on Geoscience and Remote Sensing*, 60, 4708715. (SCI, 中科院1区)
- [5] **Wang B**, Fang X, Liu C*, Zhu B. (2020). Data snooping for the equality constrained nonlinear Gauss-Helmert model using sensitivity analysis. *Journal of Surveying Engineering*, 146(4), 04020015. (SCI, 中科院3区)

- [6] **Wang B**, Liu C, Fang X*, Chen W. (2020). A universally efficient algorithm and precision assessment for seamless 3D similarity transformation. *Measurement Science and Technology*, 31(10), 105006. (SCI, 中科院3区)
- [7] **Wang B***, Yu J, Liu C, Li M, Zhu B. (2018). Data snooping algorithm for universal 3D similarity transformation based on generalized EIV model. *Measurement*, 119, 56–62. (SCI, 中科院2区)
- [8] **Wang B***, Li J, Liu C, Yu J. (2017). Generalized total least squares prediction algorithm for universal 3D similarity transformation. *Advances in Space Research*, 59(3), 815-823. (SCI, 中科院4区)
- [9] **Wang B***, Li J, Liu C. (2016). A robust weighted total least squares algorithm and its geodetic applications. *Studia Geophysica et Geodaetica*, 60(2), 177-194. (SCI, 中科院4区)
- [10] Wu Y, Andersen O B, Abulaitjiang A, **Wang B***, He X, Shi H, Luo Z, Wang H. (2025). Marine quasi-geoid enhancement from SWOT wide-swath data and its mapping of mean dynamic topography over island areas. *IEEE Transactions on Geoscience and Remote Sensing*, 63, 4209920. (SCI, 中科院1区, 唯一通讯作者)
- [11] Wang S*, Lu Z, **Wang B***, et al. (2023). A phase-based InSAR tropospheric correction method for interseismic deformation based on short-period interferograms. *IEEE Transactions on Geoscience and Remote Sensing*, 61, 5212318. (SCI, 中科院1区, 共同通讯作者)
- [12] Chen Y, Xu B, **Wang B***, Na J, Yang P. (2023). GNSS reconstrained visual-inertial odometry system using factor graphs. *IEEE Geoscience and Remote Sensing Letters*, 20, 8000305 (SCI, 中科院3区, 唯一通讯作者)
- [13] Yu J, **Wang B***, Lin Y, Li F, Cai J. (2021). A novel inequality-constrained weighted linear mixture model for endmember variability. *Remote Sensing of Environment*, 257(5), 112359 (SCI, 中科院1区, 唯一通讯作者)
- [14] Yu J, Lin Y, **Wang B***, Ye Q, Cai J. (2019). An advanced outlier detected total least-squares algorithm for 3-D point clouds registration. *IEEE Transactions on Geoscience and Remote Sensing*, 57(7), 4789-4798. (SCI, 中科院1区, 唯一通讯作者)
- [15] Wang Q, Hu Y, **Wang B***. (2019). The maximum likelihood estimation for multivariate EIV model. *Acta Geodaetica et Geophysica*, 54(2), 213-224. (SCI, 中科院4区, 唯一通讯作者)
- [16] 赵志胜, 陈宇, **王彬***. (2024). 利用非线性高斯-赫尔默特模型与抗差估计的点云拟合方法. *武汉大学学报 (信息科学版)*, 49(7), 1201-1211. (EI, F5000论文)
- [17] **王彬***. (2020). 广义整体最小二乘的拓展理论及其在测量数据处理中的应用研究. *测绘学报*, 49(8), 1070-1070. (EI)
- [18] **王彬***, 李建成, 高井祥, 刘超. (2015). 抗差加权整体最小二乘模型的牛顿-高斯算法. *测绘学报*, 44(6), 602-608. (EI)

合作作者论文:

- [1] Zhao Z, Li Z, **Wang B**, et al. (2026). Ellipse fitting with data snooping under the nonlinear

- Gauss–Helmert model for enhanced image measurement. *Measurement Science and Technology*, 37, 095402. (SCI)
- [2] Zhao Z, Li Z, **Wang B**, Wang Y, Shao K. (2025). A novel 3-D point cloud registration method with quaternions optimization and data snooping. *IEEE Transactions on Instrumentation and Measurement*, 74, 1005215. (SCI)
- [3] Xia Y, Meng X, Pan S, Zhang H, Sheng C, **Wang B**. (2025). Enhancing indoor carrier phase positioning through integration of neural network and robust unscented Kalman filter. *IEEE Transactions on Aerospace and Electronic Systems*, 61(4), 8244-8262. (SCI)
- [4] Zhao Z, Li Z, **Wang B**. (2024). A novel robust quaternions-based algorithm for 3-D symmetric similarity datum transformation. *IEEE Transactions on Instrumentation and Measurement*, 73, 1003012. (SCI)
- [5] Xi P, Li X, Song C, **Wang B**, Yin Z, Wang S. (2024). Assessing slip rates on the Xianshuihe fault using InSAR with emphasis on phase unwrapping error and atmospheric delay corrections. *Remote Sensing*, 16 (11), 1872. (SCI)
- [6] Shen N, **Wang B**, Ma H, Zhao X, Zhou Y, Zhang Z, Xu J. (2023). A review of terrestrial laser scanning (TLS)-based technologies for deformation monitoring in engineering. *Measurement*, 113684. (SCI)
- [7] Shen N, **Wang B**, Gao G, Chen L, Chen R. (2023). 3-D displacement detection based on enhanced clustering from GNSS positioning in a kinematic mode for deformation monitoring. *IEEE Transactions on Instrumentation and Measurement*, 72, 6500810. (SCI)
- [8] Fang X, Hu Y, **Wang B**, Kutterer H, Zeng W, Li D. (2023). On robust estimation of the Gauss–Markov model with a singular covariance matrix. *Measurement*, 223, 113834. (SCI)
- [9] Shen N, **Wang B**, Gao G, Chen L, Chen R. (2022). 3-D displacement detection based on enhanced clustering from GNSS positioning in a kinematic mode for deformation monitoring. *IEEE Transactions on Instrumentation and Measurement*, 72, 6500810. (SCI)
- [10] Lin P, Cheng X, Zhou T, Liu C, **Wang B**. (2021). A target-based self-calibration method for terrestrial laser scanners and its robust solution. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 14, 11954-11973. (SCI)
- [11] Chen W, Tenzer R, Xu X, Wang S, **Wang B**. (2021). Moho depth estimation beneath Tibet from satellite gravity data based on a condensation approach. *Earth and Space Science*, 8(6), e2020EA001261. (SCI)
- [12] Yu H, Wang J, **Wang B**. (2021). A correlational inference-based unscented total Kalman filter for integrated navigation. *Survey Review*, 53(379), 289-299 (SCI)
- [13] Jin Y, Wei L, **Wang B**, Yan X, Liu S, Tong X. (2020). Constrained building boundary simplification based on partial total least squares method. *Sensors and Materials*, 32(12), 4559-4572. (SCI)
- [14] Fang X, Zeng W, Zhou Y, **Wang B**. (2020). On the total least median of squares adjustment for the pattern recognition in point clouds. *Measurement*, 160, 107794. (SCI)

- [15] Qin Y, Fang X, Zeng W, **Wang B**. (2020). General total least squares theory for geodetic coordinate transformations. *Applied Sciences*, 10(7), 2598. (SCI)
- [16] Zhu B, Chu Z, Shen F, Tang W, **Wang B**, Wang X. (2019). Land subsidence (2004–2013) in Changzhou in central Yangtze River delta revealed by MT-InSAR. *Natural Hazards*, 97, 379-394. (SCI)
- [17] Yu H, Wang J, **Wang B**, Han H, Chang G. (2018). Generalized total Kalman filter algorithm of nonlinear dynamic errors-in-variables model with application on indoor mobile robot positioning. *Acta Geodaetica et Geophysica*, 53(1), 107-123. (SCI)
- [18] 杨靖宇, 刘超, **王彬**. (2019). 基于BFGS算法的概率积分模型的参数反演. *煤炭学报*, 2019, 44(10), 3058-3068. (EI)
- [19] 刘春阳, 王坚, **王彬**, 刘超, 刘纪平. (2019). 基于中位参数法相关观测的抗差加权整体最小二乘算法. *武汉大学学报 (信息科学版)*, 2019, 44(3), 378-384. (EI)
- [20] 刘超, **王彬**, 赵兴旺, 余学祥. (2018). 三维坐标转换的Gauss-Helmert模型及其抗差解法. *武汉大学学报 (信息科学版)*, 43(9), 1320-1327. (EI)

授权发明专利

- [1] **王彬**; 赵志胜; 吴学雨; 张丹丹. 基于抗差非线性高斯-赫尔默特模型的点云拟合方法, 授权公告日: 2023-8-1, 专利号: ZL 2020 1 1250790.0
- [2] **王彬**; 赵志胜. 一种基于抗差约束最小二乘算法的点云精确配准方法, 授权公告日: 2023-7-28, 专利号: ZL 2020 1 0875627.7