

# Jingyao Su

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## EDUCATION

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- **Leibniz University Hannover** Hannover, Germany  
*Ph.D in Geodesy and Geoinformation*  
Jul 2020 - Present  
Research topic: *Bounding and propagating uncertainty with interval mathematics and alternative approach for GNSS integrity* (Prof. Steffen Schön).
- **Technical University of Munich** Munich, Germany  
*Master of Science in Earth Oriented Space Science and Technology (ESPACE)*  
Oct 2017 - Jun 2020  
Specification in satellite navigation. Thesis topic: *Precise point positioning with ambiguity resolution for different GNSS signals* (Dr. Bingbing Duan, Prof. Urs Hugentobler).
- **Helmholtz Centre Potsdam - GFZ German Research Centre for Geosciences** Potsdam, Germany  
*Visiting student at Section 1.1: Space Geodetic Techniques*  
Jul 2018 - Aug 2018
- **Wuhan University** Wuhan, China  
*Bachelor of Science in Geophysics*  
Aug 2011 - Jun 2015

## EXPERIENCE

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- **Virginia Tech** Blacksburg, VA, USA  
*Visiting researcher at the Navigation laboratory for Autonomous Vehicle inTegrity (NAViTi)*  
May 2023 - Present
- **Leibniz University Hannover** Hannover, Germany  
*Doctoral researcher at Institute of Geodesy (IfE)*  
Jul 2020 - Present  
with the DFG research training group *Integrity and Collaboration in Dynamic Sensor Networks (i.c.sens)*
- **Robert Bosch Group** Hildesheim, Germany  
*R&D internship*  
Apr 2019 - Oct 2019
- **Technical University of Munich** Munich, Germany  
*Research assistant at Institute for Astronomical and Physical Geodesy (IAPG)*  
Apr 2018 - Mar 2019
- **Shenyang Institute for Geotechnical Investigation and Surveying** Shenyang, China  
*Surveying engineer*  
Aug 2015 - Aug 2017

## HONORS AND AWARDS

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- **Best Student Presentation Award** at NAVITEC 2022, by European Space Agency (ESA) - Apr 2022.
- **Best Presentation Award** at ION GNSS+ 2021, by Institute of Navigation (ION) - Sep 2021.
- **Copernicus Masters 2018** - Top 3 finalist of University Challenge, by AZO Anwendungszentrum on behalf of the European Space Agency (ESA) - Oct 2018
- **Zetai Cup National Student Paper Competition in Geodesy** - First prize, by Education Commision, Chinese Society for Surveying and Mapping - Dec 2014
- **Wang Zhizhuo Innovative Talent Scholarship** by Wuhan University - Nov 2014

## PROFESSIONAL MEMBERSHIP

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student member of IEEE, member of the Society for Imprecise Probabilities (SIPTA)

## PROFESSIONAL SKILLS

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- **Languages:** Chinese (*mother tongue*), English (*proficient in both writing and speaking*), German (*daily usage*)
- **Programming:** MATLAB, Python, C/C++, Fortran, Perl

## PUBLIC SERVICES

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- **Scientific experiment organizer:** organized and involved in the measurement campaigns (i.c.sens mapathons) with multi-sensors and multi-vehicles (GNSS, IMU, UWB, LiDAR, Mobile Mapping System, Laser Tracker). <https://doi.org/10.25835/75o9yrc0>. (Dec 2021)
- **Workshop organizer and session chair:**
  - *IEEE Symposium of Intelligent Vehicles (IEEE-IV 2022)*, the 1st iLoc workshop *High-integrity Localization for Autonomous Vehicles*, Aachen, Germany. (Jun 2022)
  - *IEEE International Conference on Intelligent Transportation Systems (IEEE-ITSC 2023)*, the 2nd iLoc workshop *High-integrity Localization for Autonomous Vehicles*, Bilbao, Spain. (planned Sep 2023)
- **Supervision of master students:**
  - Master thesis:
    - Elesawy, M. (2022). Characterizing the ionospheric behaviour for continental network RTK services over Europe. Research Project (in German: Studienarbeit) for the master program *Mechanics and robotics*:
    - Xue, F. (2023). Overbounding IMU error for trustworthy inertial navigation.
  - Master course:
    - Advanced Presentation Seminar (in German: Hauptseminar) for the master program *Geodesy and geoinformation*
    - Exercise in Advanced Concepts for Positioning and Navigation for the master program *Geodesy and geoinformation*

## PEER-REVIEWED PUBLICATIONS

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- **Su, J.**, Schön, S. & Joerger, M. (2023). Towards a set-based detector for GNSS integrity monitoring. In *IEEE/ION Position Location and Navigation Symposium 2023*. (pp. 421-429). IEEE.
- Axmann, J., Moftizadeh, R., **Su, J.**, Tennstedt, B., Zou, Q., Yuan, Y., Ernst, D., Alkhatib, H. & Schön, S. (2023). LUCOOP: Leibniz University Cooperative Perception and Urban Navigation Dataset. In *2023 IEEE Intelligent Vehicles Symposium (IV)* (pp. 1-8). IEEE.
- **Su, J.**, & Schön, S. (2022). Bounding the residual tropospheric error by interval analysis. In *Geodesy for a Sustainable Earth. International Association of Geodesy Symposia*, vol 154. Springer, Cham.
- **Su, J.**, & Schön, S. (2022). Advances in deterministic approaches for bounding uncertainty and integrity monitoring of autonomous navigation. In *Proceedings of the 35th International Technical Meeting of the Satellite Division of The Institute of Navigation (ION GNSS+ 2022)* (pp. 1442-1454).
- Schön, S., Baasch, K. N., Icking, L., KarimiDoona, A., Lin, Q., Ruwisch, F., Schaper, A. & **Su, J.** (2022, June). Towards Integrity for GNSS-based urban navigation—challenges and lessons learned. In *2022 IEEE Intelligent Vehicles Symposium (IV)* (pp. 1774-1781). IEEE.
- **Su, J.**, & Schön, S. (2022). Deterministic approaches for bounding GNSS uncertainty: A comparative analysis. In *2022 10th Workshop on Satellite Navigation Technology (NAVITEC)* (pp. 1-8). IEEE.
- **Su, J.**, & Schön, S. (2021). Improved Observation Interval Bounding for Multi-GNSS Integrity Monitoring in Urban Navigation. In *Proceedings of the 34th International Technical Meeting of the Satellite Division of The Institute of Navigation (ION GNSS+ 2021)* (pp. 4141-4156).

## SELECTED TALKS/PRESENTATIONS

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- Intervals in fault-free error modeling for GNSS applications. (Oct 2022). In *International Online Seminar on Interval Methods in Control Engineering*. Online.
- How to determine uncertainty interval: Practice in GNSS and LiDAR localization. (Jul 2022). In *13th Summer Workshop on Interval Methods (SWIM)*. Hannover, Germany.
- Deterministic approaches for bounding GNSS uncertainty: A comparative analysis. (Jun 2022). In *1st iLoc workshop on High-integrity Localization for Autonomous Vehicles, 33rd IEEE Intelligent Vehicles Symposium*. Aachen, Germany.
- Improved observation interval bounding for GNSS integrity monitoring. (Oct 2021). In *DGK PhD Seminar Engineering Geodesy Division*. Hannover, Germany.
- On the geometrical constraints for interval-based GNSS positioning. (Sep 2021). In *Frontiers of Geodetic Science (FROGS) 2021*. Hannover, Germany.
- Bounding the residual tropospheric error by interval analysis. (Jul. 2021). In *IAG 2021-Scientific Assembly of the International Association of Geodesy*. Beijing, China.