Philipp Glira

Post-doctoral researcher

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Research fields

- Robotics
- Lidar
- Photogrammetry
- Machine Learning / AI
- Computer Vision

Research interests

- Least squares adjustments
- Lidar strip adjustment (LSA)
- Bundle block adjustment (BBA)
- Integration of LSA and BBA
- Factor graphs and Kalman filtering
- Multi-sensor SLAM
- Sensor calibration
- Point cloud registration, e.g. ICP
- 3D mapping of the environment
- Temporal change detection
- AI-based scene understanding

Sensors I use the most

- Lidar
- Camera
- Imaging radar
- GNSS/IMU

I mostly code in

- C++
- Python
- Matlab/Octave
- Bash

Languages

- German
- English
- Ladin
- Italian

Awards

- Hansa Luftbild Preis 2016
- Outstanding Poster Award at EGU 2014

Short bio

I studied Geodesy and Geoinformation at the Vienna University of Technology where I completed my master's degree in 2012 (with honours) and my Ph.D. in 2018 (with honours). I wrote my doctoral thesis at the Photogrammetry Research Group under the supervision of Prof. Norbert Pfeifer. The main topic of it was the optimization of the relative orientation (registration) and absolute orientation (georeferencing) of point clouds and images collected from moving platforms, e.g. airplanes, drones, or cars. After my time at the university I joined the Active Vision Research Group led by Claudia Windisch at Siemens in 2016. Here, I mainly worked on the calibration of complex measurement systems consisting of many cameras, laser scanners and navigation sensors. Since 2019 I am a researcher in the 3D Vision team at the AIT Austrian Institute of Technology led by Dr. Manfred Gruber. Currently my main research focus is on real-time robotic applications and post-processing of mobile mapping lidar and image data.

Work experience

2008 – 2012	**Vienna University of Technology** Groups: Photogrammetry & Remote Sensing Research Groups Position: Project assistant, IT administrator
2012 – 2016	**Vienna University of Technology** Group: Photogrammetry Research Group Position: Ph.D. Student
2016 – 2018	**Siemens CT (Active Vision Research Group)** Group: Active Vision Technologies Position: Scientist, Head of Lidar
since 2019	**AIT Austrian Institute of Technology** Group: Assistive and Autonomous Systems Position: Senior Scientist

Most important first author publications

1. Glira P., Weidinger C., Kadiofsky T., Pointner W., Ölsböck K., Zinner C., Doostdar M., 2021: **3D Mobile Mapping of the Environment using Imaging Radar Sensors**. In: Proceedings of IEEE Radar Conference.
2. Glira P., Ölsböck K., Kadiofsky T., Schörghuber M., Weichselbaum J., Zinner C., Fel L., 2021: **Photogrammetric 3D Mobile Mapping of Rail Tracks**. In: ISPRS Journal of Photogrammetry and Remote Sensing.
3. Glira P., Pfeifer N., Mandlburger G., 2019: **Hybrid Orientation of Lidar Point Clouds and Aerial Images**. In: ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences, IV-2/W5, 567–574.
4. Glira P., Pfeifer N., Mandlburger G., 2016: **Rigorous Strip adjustment of UAV-based laserscanning data including time-dependent correction of trajectory errors**. In: Photogrammetric Engineering & Remote Sensing 82 (12), 945-954.
5. Glira P., Pfeifer N., Briese C., Ressl C., 2015: **Rigorous Strip Adjustment of Airborne Laserscanning Data Based on the ICP Algorithm**. In: ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences: II-3/W5.
6. Glira P., Pfeifer N., Briese C., Ressl C., 2015: **A Correspondence Framework for ALS Strip Adjustments based on Variants of the ICP Algorithm**. In: Zeitschrift PFG Photogrammetrie, Fernerkundung, Geoinformation: 2015/04.
7. Glira P., Briese C., Pfeifer N., 2012: **Direct georeferencing with on board navigation components of light weight UAV platforms**. In: Proceedings of the XXII ISPRS Congress. Technical Commission VII. ISPRS, 487-492.