

Dr.-Ing. Livia Piermattei



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Current position

- **01.2019 – 31.2021:** Post-doc at Katholische Universität Eichstätt-Ingolstadt, Eichstätt, Germany. Project: “SEHAG”: Sensitivity of High Alpine Geosystems to Climate Change Since 1850.
- **07.2018 – 06.2019:** Project assistant (25%) at the Department of Geodesy and Geoinformation, TU Wien, Austria. Project: “WebSnow” – Deriving snow cover and snow depth from Webcam images and integration with Sentinel and Pléiades data.

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Research Activity

- 05.2017 – 06.2018** – Project assistant. FFG Project: “PleiAlps” - Feasibility study for using Pléiades imagery for deriving 3D forest parameters for the entire Alpine space region
Scientific Tutor: Prof. Dr. Norbert Pfeifer
Location: Department of Geodesy and Geoinformation (GEO), TU Wien, Austria
- 04.2016 – 04.2017** – Project assistant. FP7 European project: Advanced_SAR
Tasks: investigate the feasibility of profiling radar data to estimate forest parameters and comparison with other remote sensing technologies.
Scientific Tutor: Prof. Dr. Wolfgang Wagner.
Location: Department of Geodesy and Geoinformation (GEO), TU Wien, Austria

[Nach oben](#)

Education

- 01.04.2016** – Doctorate in Topography and Cartography. University of Padova,

- 01.04.2010 – Padova, Italy
- 01.2013 – PhD Project: “The use of structure from motion technologies for high-resolution terrain modelling on high altitude catchments”.
12.2015
- 02.2015 – Visiting Student at Department of Geodesy and Geoinformation at TU
12.2015 Wien, Vienna, Austria
- 01.2013 – PhD Student at Department of Land, Environment, Agriculture and
01.2015 Forestry TESAF, Legnaro, University of Padova, Padova, Italy
- 02.2012 – Postgraduate course, Master II Level in “Smart Home Engineering”.
12.2012 Marche Polytechnic University, Fabriano, Italy
- 10.2003 – Master Degree in Building Engineering-Architecture. Five-year
02.2011 Specialist Degree course, grade 110/110. Faculty of Engineering,
Marche Polytechnic University, Ancona, Italy
- 10.2008 – Erasmus Scholarship, TU Darmstadt, Darmstadt, German
09.2009

[Nach oben](#)

Research fields

Methods:

- Structure from Motion photogrammetry (terrestrial, UAV, multi-spectral), Very High Resolution satellite imagery
- Backscatter signal analysis of vertical profiling radar
- Terrestrial laser scanning and Airborne laser scanning
- 3D point cloud processing
- Differential GPS
- GIS and spatial data analyses, and field measurements

Applications:

- Forest
- Glacial and periglacial environment (debris covered glacier, glacier and rock glacier)
- Alpine geomorphology and change detection
- Precision agriculture

[Nach oben](#)

Publications

Publications

2018

- Piermattei L., Marty M., Ginzler C., Pöchtrager M., Karel W., Ressler C., Pfeifer N., Hollaus M. 2018. Pléiades Satellite Images for deriving forest metrics in the Alpine region. International

Journal of Applied Earth Observation and Geoinformation (Submitted).

- Piermattei L., Bozzi C.A., Mancini A., Tasseti A.N., Ressler C., Karel W., Pfeifer, N. Acquisition and Spatial Co-Registration of UAV Multispectral Images: Application for Precision Agriculture. *Sensors* (submitted).
- Piermattei L., Marty M., Karel W., Ressler C., Hollaus M., Ginzler C., Pfeifer N. 2018. Impact of the Acquisition Geometry of Very High-Resolution Pléiades Imagery on the Accuracy of Canopy Height Models over Forested Alpine Regions. *Remote Sensing*, 10(10), 1542.

2017

- Piermattei L., Hollaus M., Milenković M., Quast R., Pfeifer N., Chen Y., Hakala T., Karjalainen M., Hyyppä J., Wagner W. 2017. An Analysis of Ku-Band Profiling Radar Observations of Boreal Forest. *Remote Sensing*, 9(12), 1252.

2016

- Piermattei L., Karel W., Vettore A., Pfeifer N. 2016. Panorama image sets for photogrammetric terrestrial surveys. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 159-166. doi: 10.5194/isprs-annals-III-5-159-2016.
- Piermattei L., Carturan L., de Blasi F., Tarolli P., Dalla Fontana G., Vettore A., Pfeifer N. 2016. Suitability of ground-based SfM-MVS for monitoring glacial and periglacial processes. *Earth Surf. Dynam. Earth Surf. Dynam.*, 4, 425– 443. doi:10.5194/esurf-4-425-2016.

2015

- Piermattei L., Carturan L., Guarnieri A. 2015. Use of terrestrial photogrammetry based on structure-from-motion for mass balance estimation of a small glacier in the Italian alps. *Earth Surface Processes and Landforms*, 40(13), 1791- 1802, doi:10.1002/esp.3756.

2013

- Wahbeh W., Piermattei L., Fangi G. 2013. Metric documentation of some Syrian monuments in the UNESCO Heritage sites before the war, using the spherical photogrammetry technique. *Patrimoni e Siti UNESCO* Gangemi Editore, ISBN: 9788849277284.

2011

- d'Annibale E., Piermattei L., Fangi G. 2011. Spherical Photogrammetry as emergency photogrammetry. XXIIIrd International CIPA Symposium, Prague (Czech Republic), ISBN: 978-80-01-04856.

Publications in preparation

2018

- Piermattei L., Karel W., Wang D., Wieser M., Surový P., Koreň M., Tomašík K., Mokroš M., Pfeifer N., Hollaus M. Plot scale forest measurements based on Terrestrial Structure from Motion

Oral presentation

2018

- Piermattei L., Marty M., Karel W., Ressler C., Hollaus M., Ginzler C., Pfeifer N. Is Pléiades Stereo Satellite Imagery an Appropriate Data Source for the Generation of Alpine-Wide Canopy Height Models? ESA Workshop, Eo4Alps, Innsbruck, Austria, 2018, June.
- Piermattei L., Marty M., Karel W., Ressler C., Hollaus M., Ginzler C., Pfeifer N. 2018. Canopy height model from very high- resolution Pléiades stereo images over mountain regions: influence of topography, acquisition and processing strategy. In EGU, General Assembly Conference Abstracts (Vol. 20, p. 12134).

2017

- Piermattei L., Hollaus M., Pfeifer N., Chen Y., Karjalainen M., Hyypä J., Wagner W. Comparing LiDAR with canopy penetrating Tomoradar profiles over boreal forest. SilviLaser 2017, Blacksburg, Virginia, USA; 2017, October.
- Piermattei L., Bozzi C.A., Mancini A., Tasseti A.N., Karel W., Pfeifer N. 2017. Multispectral data processing from unmanned aerial vehicles: application in precision agriculture using different sensors and platforms. In EGU, General Assembly Conference Abstracts. Vol. 19, p. 13944.
- Piermattei L., Hollaus M., Pfeifer N., Chen Y., Karjalainen M., Hakala T., Wagner W. (2017, April). Comparing helicopter- borne profiling radar with airborne laser scanner data for forest structure estimation. In EGU, General Assembly Conference Abstracts (Vol. 19, p. 13741).

2016

- Piermattei L., Karel W., Vettore A., Pfeifer N., 2016. Acquisition strategies for terrestrial photogrammetric surveys. Vol. 18, EGU2016-1111, 2016.

2015

- Piermattei L., Carturan L., de Blasi F., Tarolli P., Dalla Fontana, G., Vettore, A. 2015. Analysis of glacial and periglacial processes using the SfM-MVS approach. In EGU General Assembly Conference Abstracts, Vol. 17, p. 5311.

2014

- Piermattei L., Carturan L., Calligaro S., Blasone G., Guarnieri A., Tarolli P., Dalla Fontana G., Vettore, A. 2014. Application of terrestrial photogrammetry for the mass balance calculation on Montasio Occidentale Glacier (Julian Alps, Italy). In EGU General Assembly Conference Abstracts, Vol. 16, p. 7015.
- Piermattei L., Carturan L., Calligaro S., Blasone G., 2014. AGM 2014, 18th Alpine Glaciology Meeting, Innsbruck (Austria), 27-28 February 2014. Comparative analysis of terrestrial laser scanner and photogrammetry for the mass balance calculation of Montasio Occidentale Glacier.

Poster presentation

2018

- Piermattei L., Karel W., Wang D., Wieser M., Surový P., Koreň M., Tomašík K., Mokroš M., Hollaus M., Pfeifer N. Accuracy of Plot Level Forest Metrics from Terrestrial Photogrammetric Point Clouds. ForestSAT 2018, Oct. 2018. College Park, MD USA.

2015

- Piermattei L., Carturan L., Cazorzi F., Colucci R.R., Dalla Fontana G., Forte E., Moro D. 2015.

Monitoring of a debris- covered and avalanche-fed glacier in the Eastern Italian Alps using ground-based SfM-MVS. In EGU General Assembly Conference Abstracts, Vol. 17, p. 5236.

2014

- Tarolli P., Piermattei L., Carturan L., de Blasi F., Dalla Fontana G., Vettore A., 2014. Monitoring Glacial and Periglacial Environments in the Ortles-Cevedale (Eastern Italian Alps) Using the Sfm-MVS Approach. In AGU Fall Meeting Abstracts, Vol. 1, p. 0269.

Workshops, Training, Seminars

- 2017** Seminar at School of Civil Engineering and Geosciences, Newcastle University: “Terrain modelling of high altitude catchments in the Italian Alps using Structure-from-Motion”
- 2015** ISPRS Summer Schools of Alpine Research, July 5–11, 2015. “Close range sensing techniques in Alpine terrain”. University of Innsbruck, Innsbruck, Austria.
- 2014** MICMAC photogrammetric software. February 3–6, 2014. Polytechnic University of Turin, Turin, Italy.
- 2013** EGU Summer School, July 29-August 4, 2013. “Understanding Earth-surface processes in the alpine environment from high resolution topography”, University of Padova, San Vito di Cadore, Italy.