

EDITORIAL

Dear friends of **VOLTA**,
 a newsletter is a communication material that can be effective to raise awareness, build rapport and enhance understanding of our community about our activities to promote innovation in geospatial and 3D data.
 This is the second issue of our newsletter, which will be produced and distributed electronically twice per year, and I am confident that it will be a good opportunity for us to share with you state of the art developments in geospatial and 3D data, bridging science and industry in an inclusive and transparent way. Stay tuned with us and please do not hesitate to send your suggestions on this publication.



Fabio Remondino, Coordinator of **VOLTA** project



The project is composed of **13 intersectoral partners** coordinated by FBK Trento (Italy):

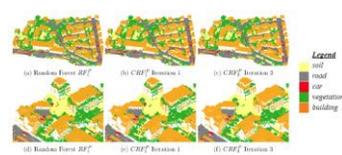
- [Fondazione Bruno Kessler \(FBK\)](#) – [3D Optical Metrology unit](#), Italy
- [Gottfried Wilhelm Leibniz Universitaet Hannover \(LUH\)](#) – [Institute of Photogrammetry and GeoInformation](#), Germany
- [Technische Universitaet Wien \(TUW\)](#) – [Photogrammetry group](#), Austria
- [Uniwersytet Warszawski \(UW\)](#) – [Department of Geoinformatics, Cartography and Remote Sensing](#), Poland
- [Technische Universiteit Delft \(TUD\)](#) – [3D GeoInformation group](#), Netherlands
- [Institut National de l'Information Geographique et Forestiere \(IGN\)](#), France
- [Ordnance Survey \(OS\)](#), Great Britain, UK
- [Institut Cartografic i Geologic de Catalunya \(ICGC\)](#), Spain
- [Centrul National de Cartografie \(CNC\)](#), Romania
- [Geodetski Zavod Celje \(GZC\)](#), Slovenia
- [Vermessung AVT-ZT-GmbH \(AVT\)](#), Austria
- [Vexcel Imaging GmbH \(VIG\)](#), Austria
- [GeoImaging Ltd \(GEO\)](#), Cyprus

PARTNERS' DESCRIPTION - Bridging Science & Industry in VOLTA

Institute of Photogrammetry and GeoInformation (IPI) - Leibniz University of Hannover (LUH), Germany

The scientific work at the Institute of Photogrammetry and GeoInformation of the Leibniz University of Hannover (LUH), focuses on four main research areas: geometric aspects of sensors and images, interpretation of remote sensing data, automatic image interpretation, and close range photogrammetry. Currently, a staff of about 25 researchers (12 of which are funded by third party research projects, and three foreign guest scientists pursue a PhD at IPI with scholarships from their own country) specialises in automatic data acquisition and mapping from aerial and space images. Update and refinement of geospatial databases is another area, in which the institute has internationally recognised expertise. IPI-LUH has excellent connections to local SMEs and national mapping organisations in Germany (e. g. State Survey Authority LGN, Hannover; Bundesamt für Kartographie und Geodäsie BKG, Frankfurt/M.) and through its active participation in ISPRS and EuroSDR.

Webpage: <https://www.ipi.uni-hannover.de>



Vermessung AVT ZT GmbH, Austria

Vermessung AVT ZT GmbH is a private SME founded in 1970. AVT offers services in all fields of surveying engineering including cadastral, engineering geodesy, photogrammetry, laser scanning and geoinformatics. Regional presence, international projects and continuous technical innovation are the base of AVT's work. AVT is certified according to ISO 9001 standards. The staff consists of 65 full-time equivalent collaborators, including 20 academics. The focus of innovation is mainly in the field of airborne photogrammetry and laser scanning. Twenty highly motivated and qualified people are assigned to this business sector.

The main focus areas are projects in (highly) alpine environments with all related challenges (flight planning, flight execution, georeferencing, processing and analysis), and oblique flights with up-to-date multi-head sensor systems. AVT has two subsidiaries: (i) Terra Messflug GmbH (Terra), a 100% daughter of AVT founded in 2009 which deals with airborne sensing projects and performs the main share of photogrammetric flights for AVT. (ii) IDC EDV GmbH, under majority ownership of AVT and has three business branches: tailored hardware solutions for SMEs including demanding clients like AVT and Terra, software development for cadastral surveying and engineering geodesy, and tourism marketing.

Webpage: <http://www.avt.at>



PAST MEETINGS AND EVENTS

PROJECT'S 2nd Plenary meeting, Riva del Garda, Italy

The 1st year meeting of **VOLTA** was held within the ISPRS Technical Commission II Symposium in June 2018. During the event all partners were present, past and incoming activities were presented, including secondments, summerschools and workshops.



Joint EuroSDR / VOLTA session @ ISPRS Technical Commission II Symposium, 5 June 2018, Riva del Garda, Italy

A technical session was organized with the ISPRS event (<http://www.isprs.org/tc2-symposium2018/>) about 3D mapping at national scale. The session features presentations on "Point clouds and derivatives for nationwide geospatial information", "Extraction of building roof edges from lidar data", "Boundary delineation from UAV data" and "Evaluation of deep learning based stereo matching methods"



"Point cloud processing" seminar (PCP2018), March 13th 2018, TU Delft, the Netherlands

The event, supported by **VOLTA**, presented the latest developments in point cloud processing with the objective to share knowledge and new achievements (<https://3d.bk.tudelft.nl/events/pcp2018/>). Almost 100 participants and some 20 presentations made the event a very successful and interesting one.



VOLTA presented at the joint RFIAP/CFPT conference

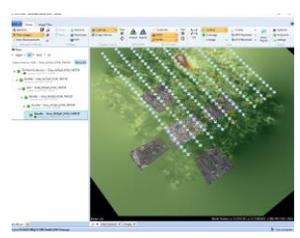
Thanks to IGN, **VOLTA** was presented at the joint RFIAP/CFPT conference (<https://rfiap2018.ign.fr/>), the first joint French conference between the AI / Pattern Recognition and Photogrammetry / Remote Sensing communities.



SECONDMENTS

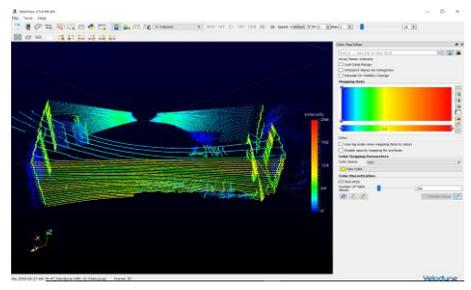
- **Bernhard Schachinger (VIG, Austria) @ FBK, Italy**

The secondment was hosted by FBK Trento (Italy) and lasted for two months, under the framework of WP2 “Automation in Photogrammetry”. The aim of the secondment was multifold: to prepare a dataset which can be used by all project partners for all activities related to the project, to enhance understanding of data, workflows and solutions related to oblique aerial imagery and to check the potential of software products and run tests. Multiple tests were performed running various commercial software (Pix4D, Match-AT, UltraMap) and comparing the results.



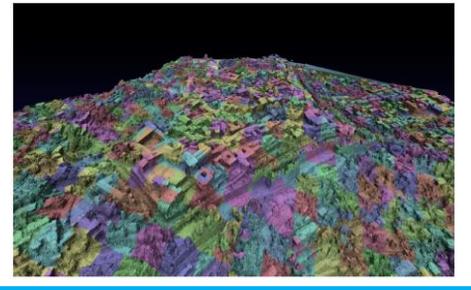
- **Fabio Menna (FBK, Italy) @ VIG**

The secondment was hosted by Vexcel Imaging GmbH (Graz, Austria) and performed under the framework of WP2 “Automation in Photogrammetry”, focused on mobile mapping 3D acquisitions. The research activity encompassed different stages of system design, prototyping, testing and quality control. The aim was to investigate methods for updating the self-calibration of the onboard imaging system through the use of common object points visible in the portion of the shared field of view between the sensors.



- **Laurent Caraffa (IGN, France) @AVT, Austria**

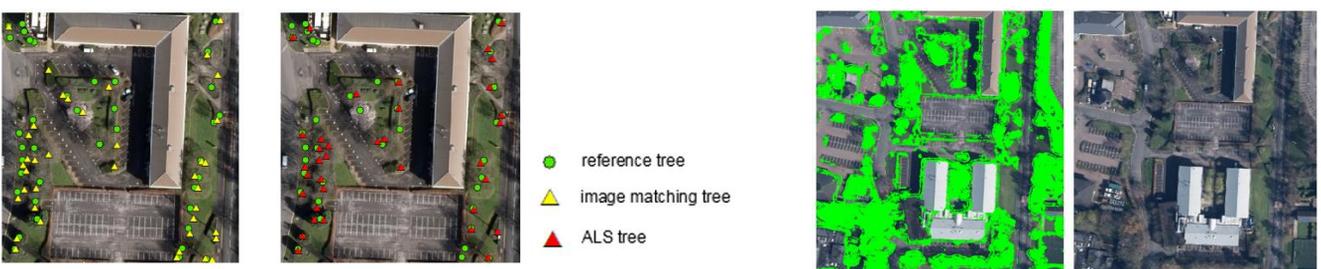
The secondment was hosted by AVT Vermessung (Imst, Austria), lasted one month and was realized under the framework of WP2 “Automation in Photogrammetry”. Most of the exchange are with the photogrammetric team and the goal was to work on the tie point extraction and pairing in the 3D reconstruction context. MATCH-AT and Micmac software were used for the image orientation step together with the surface reconstruction pipeline used at IGN.



SECONDMENTS

• **Grazyna Wilczek-Pugh(OS, UK) @ TUW, Austria**

The secondment was hosted by the Photogrammetry Research Group which is part of the Department of Geodesy and Geoinformation at the Technische Universität Wien (TU Wien). The objective of the secondment was to research methods of tree detection in urban environment from a point cloud and DSM using algorithms developed by members of the Photogrammetry Group at TU Wien and to apply them to data provided by Ordnance Survey. Local maxima and machine learning methods were used and compared. The subject of the secondment complies with the VOLTA WP4: “Segmentation & semantic enrichment of geospatial data”.



FUTURE MEETINGS AND EVENTS

VOLTA 1st Summerschool “Automation in the context of National Mapping Agency production”

The 1st summerschool will be held at TU Vienna on September 25-28, 2018. The aim is to strengthen the ties between mapping service providers, research institutions and national agencies in the domain of geodata and geoinformation. This will increase the efficiency of production and provide more and higher quality services to citizens. The school will feature lectures, practical works, demos and a study visit to a super computing centre.

More info: <http://www.geo.tuwien.ac.at/volta/>

EARSel Workshop on “UAS for mapping and monitoring”

VOLTA will support the workshop on UAS which will be held on 5-7 September 2018 in Warsaw, Poland - <http://uas.earsel.org/workshop/1st-uas-ws/>



CONTACTS:

Project coordinator: Fabio Remondino, FBK Trento, Italy – remondino@fbk.eu

 <http://volta.fbk.eu>  @VOLTA_MSCA