

University of Stuttgart  
Germany



## Programme

Advancement in  
Photogrammetry,  
Remote Sensing  
and  
Geoinformatics

57<sup>th</sup> Photogrammetric  
Week

[phowo.ifp.uni-stuttgart.de](http://phowo.ifp.uni-stuttgart.de)

## Invitation

### Advancement in Photogrammetry, Remote Sensing and Geoinformatics

The Institute for Photogrammetry of the University of Stuttgart and the OpenPhoWo partners would like to give notice of the

**57<sup>th</sup> Photogrammetric Week in Stuttgart**  
from Monday, September 9 to Friday, September 13, 2019.

The biennial event Photogrammetric Week (PhoWo) was initiated by Carl Pulfrich as a "vacation course in photogrammetry" in 1909; since 1973 it has been held at the University of Stuttgart. Over the years remote sensing and geoinformatics together with photogrammetry have become the major subject areas of this conference. Today, the Photogrammetric Week enjoys international recognition as an upgrading seminar and a platform for the exchange of experience.

The lectures will focus on trends and achievements of the following topics:

- Sensors and Data Acquisition
- Photogrammetry, Computer Vision and Remote Sensing
- Geoinformatics

The presentations will be in English. Sufficient time will be allocated for discussions.

The program will be supplemented with demonstrations and comments on practical examples in the afternoons. The fringe events will offer sufficient opportunity for personal contacts.

In addition, one tutorial with three topics will be held by the Institute for Photogrammetry (ifp) on Sunday afternoon, September 8, 2019: topics include **state-of-the-art in UAV-based mapping, modern LIDAR sensor technologies** and **Deep Learning**.

We look forward to meeting you in Stuttgart.

Prof. Dr.-Ing. Uwe Sörgel  
Institute for Photogrammetry  
University of Stuttgart

## Programme

Monday, September 9, 2019

from 7:30	Registration of participants
9:00	<b>Opening of the 57<sup>th</sup> Photogrammetric Week</b> <b>Welcome Addresses</b> <b>Brief Lectures by the OpenPhowo Partners</b>
9:15	<b>Hartmut Rosengarten, Leica Geosystems, Heerbrugg, Switzerland</b> Airborne Photogrammetry for Digital Reality Ecosystems
9:45	<b>Alexander Wiechert, Vexcel Imaging, Graz, Austria</b> Vexcel Imaging, New Challenges for the Future
10:05	<b>Andreas Ullrich, Riegl, Horn, Austria</b> Advances in Data Acquisition and Processing with Waveform-LiDAR Sensors
10:25	Break
11:00	<b>Philipp Grimm, IGI, Kreuztal, Germany</b> News from IGI
11:20	<b>Tim Lemmon, Trimble, Stuttgart, Germany</b> From Data Capture to Information – How Photogrammetry is Driving Trimble Solutions to Provide Customer Value
11:40	<b>Konrad Wenzel, nFrames, Stuttgart, Germany</b> News for SURE - City- and Countrywide Mapping with Imagery and LiDAR
12:00	<b>Florian Muehlschlegel, Pix4D, Lausanne, Switzerland</b> How Pix4D is Unlocking the Potential of Spatial Data in Digital Agriculture
12:20	<b>Announcements</b> Lunch Break
14:30	<b>Demonstrations</b>
-	in groups according to separate schedule (in D & E)
17:00	
17:00	<b>Ice Breaker Party</b>
-	in the Conference Building K1 (Foyer Lecture Hall)
20:00	

Tuesday, September 10, 2019

1<sup>st</sup> Topic: "New sensors, Positioning and Navigation"

- 8:45 **Uwe Rascher, Forschungszentrum Jülich, Germany**  
ESA's Earth Explorer 8 Satellite Mission FLEX – Understanding of Solar-induced Fluorescence Measured on Different Scales
- 9:30 **Michael Eineder, German Aerospace Center (DLR), Oberpfaffenhofen, Germany**  
SAR Imaging Geodesy
- 10:00 **Juha Hyyppä, Finnish Geospatial Research Institute FGI, Masala, Finland**  
Searching for the Potential of Single Photon Technologies - FGI Case Studies
- 10:30 Coffee Break
- 11:00 **Ismael Colomina, GeoNumerics, Castelldefels, Spain**  
MapKITE: A Tandem Drone and Terrestrial Corridor Mapping System and Method
- 11:30 **Thomas Hobiger, University of Stuttgart**  
Navigation of Autonomous Vehicles - Challenges and Risks
- 12:00 **The Carl Pulfrich Award 2019 Ceremony**  
- Hartmut Rosengarten, Leica Geosystems, Heerbrugg, Switzerland (Introduction)  
- The Carl Pulfrich Awardee
- 12:30 Lunch Break
- 14:30 **Demonstrations**  
- in groups according to separate schedule (in D & E)
- 17:00
- 18.00 **Reception by the City of Stuttgart**  
City Hall



Wednesday, September 11, 2019

2<sup>nd</sup> Topic: "Autonomous Driving, Photogrammetry, Mobile Mapping"

- 8:45 **Uwe Franke, Daimler AG, Sindelfingen, Germany**  
Vision for Autonomous Vehicles: From Precise Measurements to Scene Understanding
- 9:30 **Christian Heipke, Leibniz University Hannover, Germany**  
Photogrammetric Image Sequence Analysis
- 10:00 **Philipp Lottes, University of Bonn, Germany**  
Plant Perception Systems for Agricultural Robots
- 10:30 Coffee Break
- 11:00 **Fabio Remondino, Bruno Kessler Foundation, Trento, Italy**  
Analysis of Historical Aerial Images Based on Machine Learning
- 11:30 **Philipp Glira, AIT Austrian Institute of Technology, Vienna, Austria**  
Hybrid Orientation of Aerial Lidar Point Clouds and Aerial Images
- 12:00 **Davide Cucci, EPFL, Lausanne, Switzerland**  
Joint Adjustment of Raw Inertial Data and Image Observations: Methods and Benefits
- 12:30 Lunch Break
- 14:30 **Demonstrations**  
- in groups according to separate schedule (in D & E)
- 17:00

Thursday, September 12, 2019

3<sup>rd</sup> Topic: "Deep Learning, Crowd Sourcing"

- 8:45 **Jan Dirk Wegner, ETH, Zurich, Switzerland**  
Deep Learning in Photogrammetry and Remote Sensing
- 9:30 **Ribana Roscher, University of Bonn, Germany**  
From Transparency to Explainability: Machine Learning for Natural Sciences
- 10:00 **Peter Reinartz, German Aerospace Center (DLR), Oberpfaffenhofen, Germany**  
AI-based Analysis of Aerial Images for Autonomous Driving
- 10:30 Break
- 11:00 **Volker Walter, ifp, Stuttgart, Germany**  
Paid Crowdsourcing: Outsourcing of Spatial Data Collection Tasks to an Undefined Group of Paid Workers in the Internet
- 11:30 **Charles Toth, Ohio State University, Columbus, USA**  
Creating High-Definition Maps: Crowdsourcing/Crowdsensing by Smart Devices and Connected and Automated Vehicle Technologies
- 12:00 **Bernhard Höfle, Institute of Geography, Heidelberg University, Germany**  
3D Micro-Mapping: Crowdsourcing to Support Image and 3D Point Cloud Analysis
- 12:30 Lunch Break
- 14:30 **Demonstrations**  
- in groups according to separate schedule (in D & E)
- 17:00
- Evening: **Get-Together Night on the River Neckar**  
18:00 Busses will leave for Get-Together and PhoWo Dinner Party  
19:00 Get-Together Night and PhoWo Dinner Party, with the "Wilhelma" on the river Neckar
- Return at about 22:30



Friday, September 13, 2019

**4<sup>th</sup> Topic: "Mapping, Modern Construction, Visualization"**

- 8:45 **Nicolas Paparoditis, IGN, France**  
Some Research Trends and Applications of 3D Data Collection from the Perspective of a National Mapping Agency
- 9:30 **Willem van Hinsbergh, Kadaster, Apeldoorn, The Netherlands**  
Countrywide DSM and Large-scale 3D Production in The Netherlands
- 10:00 **Christian Elsner, District Government of Cologne, Germany**  
Open Data Policy in North Rhine-Westphalia
- 10:30 Coffee Break
- 11:00 **Achim Menges, University of Stuttgart, Germany**  
Integrative Computational Design and Construction
- 11:30 **Daniel Weiskopf, University of Stuttgart, Germany**  
Immersive Analytics: Augmented Reality Meets Visualization
- 12:00 **Closing Session**
- 12:30 **Farewell Drink**

**Demonstrations of the OpenPhoWo Partners**  
(in groups according to separate schedule)

- A Airborne Sensor Innovations: 2D / 3D Imagery & LiDAR (**Leica Geosystems**)
- B HxMap – One Platform, Many Solutions (**Leica Geosystems**)
- C Trimble Photogrammetric Solutions Workshop (**Trimble**)
- D IGI – Integrated Geospatial Innovations (**IGI**)
- E Vexcel Imaging, UltraCam and UltraMap (**Vexcel Imaging**)
- F SURE — Large Scale DSM, True Ortho and Mesh Production Workflows (**nFrames**)
- G Terrestrial and UAV-based Laser Scanning: Acquisition and Merging of LiDAR Data in Practice (**Riegl**)
- H How Pix4D is Unlocking the Potential of Spatial Data in Digital Agriculture (**Pix4D**)

**Site of the seminar**

All lectures will be held in lecture hall 2.01, Breitscheidstr. 2A, 70174 Stuttgart. Rooms for demonstrations are available in buildings K1 and K2.

**Registration Desk — Opening Times**

Sunday, Sep 8: 10<sup>00</sup> - 18<sup>00</sup>  
Monday, Sep 9 - Friday, Sep 13: 8<sup>00</sup> - 16<sup>00</sup> (Friday: - 13<sup>00</sup>)

**Lectures and discussions**

As in the past, the lectures and discussions will be held in the morning. The conference language will be English.

**Demonstrations of instruments and systems**

Demonstrations are scheduled for the afternoons. Working groups will be formed in accordance with the particular interests of each participant and the language spoken.

**Fringe programme**

A fringe programme will give all participants the opportunity for personal contacts and individual discussions.

**Accommodation**

Accommodation can directly be booked at Stuttgart Marketing GmbH by either  
Fax +49 711 22 28 251  
email: hotels@stuttgart-tourist.de  
www: <http://www.stuttgart-tourist.de>

**Registration and fees**

Applications for the 57th Photogrammetric Week should be made by online registration: <https://www.conftool.com/phowo2019/>

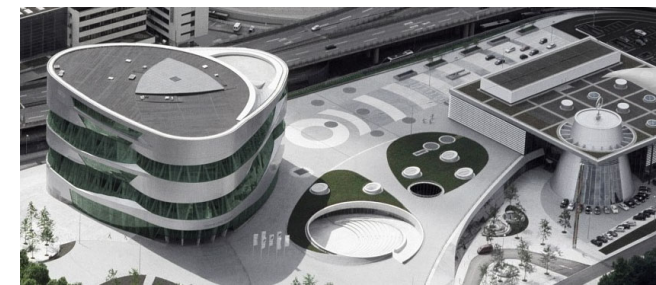
The participation fee is 500,00 Euro for registration and payment by **June 30, 2019** and 550,00 Euro after that date. Day ticket will cost Euro 250,-

For Master and Bachelor students below 27 the participation fee is 250,00 Euro. ID will be checked upon registration.

For participation in the tutorial there is a charge of 150,00 Euro.

**Contact**

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Stuttgart is the state capital of Baden-Württemberg. It has a population of about 590000. Situated in the valley of Neckar river, between the hills of the Swabian Alb and the Black Forest, it is often called "the city between forests and vineyards". A large number of cultural highlights are to be found in the city including opera, ballet, theatres, concert and music halls, art galleries, and various famous museums. There is also a rich variety of sports events as well as many possibilities for individual activities such as mountain biking and hiking. Due to Stuttgart's central location, it is easy to visit neighboring countries like France, Switzerland, Italy, Austria, Czech Republic, Belgium and the Netherlands.

The Stuttgart region is one of the most attractive regions in Germany. It is well known for its high-tech industries such as car manufacturing, environmental technologies, machining tools, electronics and information and communication technology. Many internationally renowned companies such as Daimler, Porsche, Bosch, HP and IBM Germany have their headquarters and factories in the Stuttgart region. In addition, numerous smaller and medium sized technology-oriented companies are making their mark on the industrial and business environment.

