

University of Stuttgart  
Germany



## Programme

Advancement in  
Photogrammetry,  
Remote Sensing  
and  
Geoinformatics

56<sup>th</sup> Photogrammetric  
Week

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

## 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

**56<sup>th</sup> Photogrammetric Week in Stuttgart**  
from Monday, September 11 to Friday, September 15, 2017.

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. And the new organizer is as well committed to continue the successful history of this event.

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, a tutorial on "Remote Sensing – From Basics to Advanced Methods" will be held by the Institute for Photogrammetry (ifp) on Sunday afternoon, September 10, 2017. The fundamentals of optical and radar image sensors (SAR) are highlighted and we will emphasize on SAR interferometry and modern methods for land cover classification.

We look forward to meeting you in Stuttgart.

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

## Programme

Monday, September 11, 2017

from 7:30	Registration of participants
9:00	<b>Opening of the 56<sup>th</sup> Photogrammetric Week</b> <b>Welcome Addresses</b> <b>Brief Lectures by the OpenPhowo Partners</b>
9:20	<b>Hartmut Rosengarten, Leica Geosystems, Heerbrugg, Switzerland</b> RealWorld - RealCity - RealTerrain The integral world of Leica Airborne Solutions
9:50	<b>Alexander Wiechert, Vexcel Imaging, Graz, Austria</b> News from Vexcel Imaging
10:10	<b>Andreas Ullrich, Riegl, Horn, Austria</b> Advances in RIEGL's Waveform-LiDAR Technology and Waveform-LiDAR Products
10:30	Break
11:00	<b>Philipp Grimm, IGI, Kreuztal, Germany</b> News from IGI
11:20	<b>Ronald Bisio, Trimble, Stuttgart, Germany</b> News from Trimble
11:40	<b>Konrad Wenzel, nFrames, Stuttgart, Germany</b> Large Scale Airborne City Capturing - Challenges and Opportunities
12:00	<b>Julian Norton, Pix4D, Lausanne, Switzerland</b> Photogrammetric Innovations for Industry Applications
12:20	<b>Announcements</b> Lunch Break
14:30	<b>Demonstrations</b> in groups according to separate schedule (in D & E)
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17:00	
17:00	<b>Ice Breaker Party</b> in the Conference Building K2 (Foyer Lecture Hall)
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20:00	

Tuesday, September 12, 2015

1<sup>st</sup> Topic: "Sensors"

- 8:45 **Michele Crosetto, CTTC, Castelldefels, Spain**  
Deformation Monitoring by Means of Ground-based and Satellite SAR
- 9:30 **Andreas Reigber, German Aerospace Center (DLR), Oberpfaffenhofen, Germany**  
DLR's Airborne F-SAR System
- 10:00 Coffee Break
- 10:30 **Boris Jutzi, Karlsruhe Institute of Technology, Germany**  
Less Photons for more LiDAR? A Review from Multi-Photon-Detection to Single-Photon-Detection
- 11:00 **Ralf Reulke, German Aerospace Center (DLR), Berlin, Germany**  
Hyperspectral Systems: Recent Developments and Low Cost Sensors

"Cultural Heritage"

- 11:30 **Chance Coughenour, Google, London, UK**  
Preservation with Google Arts & Culture
- 12:00 **The Carl Pulfrich Award 2017 Ceremony**  
- Jürgen Dold, Hexagon 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 13, 2015

2<sup>nd</sup> Topic: "Autonomous Driving and Photogrammetry"

- 8:45 **Martin Haueis, Daimler, Sindelfingen, Germany**  
Mapping the World - Vehicle Localization for Autonomous Driving
- 9:30 **Stephan Hinz, Karlsruhe Institute of Technology, Germany**  
Visual SLAM with Multi-Fisheye Camera Systems
- 10:00 **Thomas Luhmann, Jade University of Applied Sciences Oldenburg, Germany**  
Dense Pointclouds from Combined Nadir and Oblique Imagery by Object-based Semi-global Multi-image Matching
- 10:30 Coffee Break
- 11:00 **Torsten Sattler, ETH Zürich, Switzerland**  
Out with the Old? Convolutional Neural Networks for Feature Matching and Visual Localization
- 11:30 **Franz Rottensteiner, Univ. Hannover, Germany**  
Which Data Do We Need for Training? Domain Adaption and Learning Under Label Noise
- 12:00 **Werner Bösemann, AICON 3D Systems, Braunschweig, Germany**  
Industrial Photogrammetry for Applications in Automotive and Aerospace Industry
- 12:30 Lunch Break
- 14:30 **Demonstrations**  
- in groups according to separate schedule (in D & E)  
17:00

Thursday, September 14, 2015

3<sup>rd</sup> Topic: "Precision Farming and Remote Sensing"

- 8:45 **Hans W. Griepentrog, Institute of Agricultural Engineering, University of Hohenheim, Germany**  
Precision Farming - Technology for highly efficient Production Systems
- 9:25 **Arno Ruckelshausen, University of Applied Sciences Osnabrück, Germany**  
Imaging Sensor Systems - Key Technology for Innovative and Sustainable Agricultural Systems
- 10:05 **Clement Atzberger, Universität für Bodenkultur (BOKU) Wien, Austria**  
The Arrival of a Game Changer: Sentinel-2 and Possible Applications for Vegetation Monitoring in Forestry and Agriculture
- 10:35 Break
- 11:05 **Peter Krzystek, Department of Geoinformatics, University of Applied Sciences, Munich, Germany**  
LiDAR-based 3D Mapping of Forests
- 11:35 **Gottfried Mandlburger, University of Stuttgart, Germany**  
Bathymetry from Active and Passive Airborne Remote Sensing - Looking Back and Ahead
- 12:05 **Herbert Brockmann, German Federal Institute of Hydrology (BfG), Koblenz, Germany**  
From Applied Research to Application - Remote Sensing Products for Waterway Management
- 12:35 Lunch Break
- 14:30 **Demonstrations**  
- in groups according to separate schedule (in D & E)  
17:00
- Evening: **Get-Together Night at Alte Kelter in Fellbach**  
18:00 Busses will leave for Get-Together and PhoWo Dinner Party  
19:00 Get-Together Night and PhoWo Dinner Party, Alte Kelter, Fellbach  
Return at about 22:30



Friday, September 15, 2015

## 4<sup>th</sup> Topic: "BIM and GIS"

- 8:45 **Andre Borrmann, TU Munich, Germany**  
BIM - The Digitalization of the Construction Industry
- 9:30 **Uwe Stilla, TU Munich, Germany**  
Process Monitoring of Construction Sites by Photogrammetric Point Clouds and 4D Building Information Models (BIM)
- 10:00 **Jakob von Heyl, University of Stuttgart, Germany**  
Lean Construction Controlling and Tracking using digital Methods
- 10:30 Coffee Break
- 11:00 **Stephan Nebiker, FHNW, School of Architecture, Civil Engineering and Geomatics, Muttenz, Switzerland**  
3D Imagery for Infrastructure Management - Mobile Mapping meets the Cloud
- 11:30 **Thomas Kersten, HafenCity University Hamburg, Germany**  
Virtual Monuments and Virtual Museums in a Game Engine – An Immersive Experience using the VR System HTC Vive
- 12:00 **Closing Session**
- 12:30 **Farewell Drink**

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

- A Leica RealWorld & RealCity - The Future of 2D and 3D Airborne Mapping ([Leica Geosystems](#))
- B Leica Airborne LiDAR Solutions Update - from Bathy to SPL ([Leica Geosystems](#))
- C Learning to See - Trimble Workflows for Multi-head Data and Neural Networks ([Trimble](#))
- D IGI – Integrated Geospatial Innovations ([IGI](#))
- E Vexcel Imaging, UltraCam and UltraMap ([Vexcel Imaging](#))
- F Large Scale DSM, True Ortho and Mesh Production with SURE ([nFrames](#))
- G Efficient and Versatile Waveform-LiDAR: The New RIEGL VQ-1560i and the VUX-family ([Riegli](#))
- H Photogrammetric Innovations for Industry Applications ([Pix4D](#))

## Site of the seminar

Lectures and discussions will be held in the basement auditorium of building K2 of the University of Stuttgart, Keplerstrasse 17. Rooms for demonstrations are available in buildings K1 and K2.

## Registration Desk — Opening Times

Sunday, Sep 10: 10<sup>00</sup> - 18<sup>00</sup>  
Monday, Sep 11 - Friday, Sep 15: 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](mailto:hotels@stuttgart-tourist.de)  
www: <http://www.stuttgart-tourist.de>

## Registration and fees

Applications for the 56th Photogrammetric Week should be made by online registration: <https://www.conftool.com/phowo2017/>

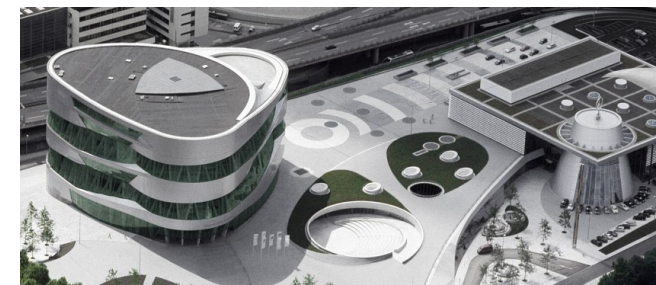
The participation fee is 500,00 Euro for registration and payment by **June 30, 2017** and 550,00 Euro after that date. Day ticket will cost Euro 250,-

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.

