



University of Stuttgart
Germany



Programme

Advancement in
Photogrammetry,
Remote Sensing
and
Geoinformatics

58th Photogrammetric
Week

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 inform about the

**58th Photogrammetric Week (PhoWo) in Stuttgart
from Tuesday, September 13 to Friday, September 16, 2022.**

The event was originally supposed to take place in autumn 2021, but had to be postponed due to the corona pandemic. Although corona has not yet been completely overcome, we are optimistic that we will be able to hold PhoWo as a face-to-face event again this time. The biennial event 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 programme will be supplemented with demonstrations and comments on practical examples in the afternoons. The fringe events will offer sufficient opportunity for personal contacts.

We look forward to meeting you in Stuttgart.

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

Topics of the Lectures

Photogrammetry, computer vision, remote sensing, and geoinformatics partly overlap in terms of research and practice. Therefore, in comparison to former Photogrammetric Weeks we now classify the topics of the lecture program into two key categories *Sensors and Data Acquisition and Methods and Applications*.

Sensors and Data Acquisition (Satellite, airborne, UAV, terrestrial)

- Nadir and Oblique Camera Systems
- Laserscanning
- Synthetic Aperture Radar

Methods and Applications

- Autonomous Driving and vehicle based mobile mapping
- Precision Farming
- Deep Learning
- Crowd Sourcing
- Building Information Modelling (BIM)

Programme

Tuesday, September 13, 2022

from 8:00 Registration of participants

8:45 **Opening of the 58th Photogrammetric Week**

Welcome Addresses

1st Topic: "Sensors, UAV"

9:00 **Francesco Nex, University of Twente, The Netherlands**
UAV in the advent of twenties: where we stand and what is next.

9:45 **Norbert Haala, University of Stuttgart, Germany**
Capture and evaluation of high quality UAV-based image and LiDAR data sets

10:15 **Narve Schipper Kjørsvik, Terratec, Norway**
Mathematical and statistical modeling in multi-sensor mapping systems

10:45 Coffee Break

11:15 **Dominik Merkle, Uni Freiburg & FhG IPM, Germany**
New approaches for high-resolution multidimensional laser scanning

11:45 **Uwe Sörgel, University of Stuttgart, Germany**
Trends in Satellite Remote Sensing

12:15 **Alexander Wiechert, Vexcel Imaging, Graz, Austria**
Innovation and Continuity - 30 Years Vexcel Imaging Graz

12:25 **Philipp Grimm, IGI**
Versatile Systems for Airborne & Mobile Mapping

12:35 **Announcements**
Lunch Break

14:30 **Demonstrations**
in groups according to separate schedule (in D & E)

- **Demo A - Vexcel Imaging:** UltraCam and UltraMap - where are we today
- **Demo B - IGI:** IGI Optimized Workflow for Multisensor Systems

17:15 **Ice Breaker Party**

18:45

Wednesday, September 14, 2022

2nd Topic: "Photogrammetry, Laserscanning"

8:45 **Andreas Nüchter, University of Würzburg, Germany**
3D scanning and mapping for mobile systems with unconventional trajectories

9:30 **Ville Lehtola, University of Twente, The Netherlands**
GraphSLAM for Indoor Mapping

10:00 **Martin Weinmann, KIT, Germany**
Semantic Segmentation of 3D Point Clouds: A Survey
Addressing Pointwise, Contextual and Deep-Learning-Based Classification

10:30 Coffee Break

11:00 **Bruno Vallet, IGN, France**
3D mapping at IGN

11:30 **Bart Beers, Cyclomedia, The Netherlands**
Large scale hybrid aerial and street level data collection, processing and application

12:00 **Peter Rieger, Riegl**
RIEGL Ultimate LiDAR Technology – tailored for demanding applications

12:10 **Klaus Neumann, Leica Geosystems**
The Carl Pulfrich Award 2022 Ceremony
- NN, Leica Geosystems, Heerbrugg, Switzerland
(Introduction)
- The Carl Pulfrich Awardee

12:40 **Announcements**
Lunch Break

14:30 **Demonstrations**
in groups according to separate schedule (in D & E)

- **Demo C - Leica Geosystems:** Leica Geosystems Airborne Sensors to Build the Core of your Digital Twin
- **Demo D - Riegl:** Kinematic laser scanning: from data acquisition to point cloud - the RIEGL workflow in fast forward mode

Thursday, September 15, 2022

3rd Topic: "Precision Farming"

8:45 **Christopher McCool, University of Bonn, Germany**
Robotics and Robotic Vision for Precision Agriculture

9:30 **Lasse Klingbeil, University of Bonn, Germany**
Kinematic laser scanning on the field - building multi-temporal high resolution 3D models of crop

10:00 **Thomas Längle, FhG IOSB, Germany**
Digitization in the value chain of viticulture: from planting to for grape delivery

10:30 Coffee Break

11:00 **Damian Bargiel, University of Geisenheim & Coramaps, Germany**
Full-coverage and near-real-time analyses of agricultural areas based on COPERNICUS data

11:30 **Michael Schmitt, University of the Bundeswehr Munich, Germany**
New possibilities for global Earth observation using multi-sensor data and transferable AI models

12:00 **Mohsen Miri, Trimble:** Orchestrating the Precision, From Data Acquisition to Autonomy

12:10 **Konrad Wenzel, Esri R&D Center, Stuttgart:** Photogrammetry meets GIS

12:20 **Announcements**
Lunch Break

14:30 **Demonstrations**
in groups according to separate schedule (in D & E)

- **Demo E - Trimble:** Behind the scene of MATCH-AT v13, Highlights, Tips and Tricks
- **Demo F - ESRI:** Sure for ArcGIS - Photogrammetry empowering GIS

Evening: **Get-Together Night at Sonnenhof**
18:00 Busses will leave for Get-Together and PhoWo Dinner Party
19:00 Get-Together Night and PhoWo Dinner Party at Sonnenhof

Return at about 22:30



Friday, September 16, 2022

4th Topic: "BIM"

- 8:45 **Jörg Blankenbach, RWTH Aachen**
Beyond BIM - From virtual building models to digital twins for the built environment
- 9:30 **Jan Böhm, UCL, UK**
BIM, Digital Twins, AI – buzzwords or a coherent strategy?
- 10:00 **Markus Gerke, TU Braunschweig, Germany**
Quality control in additive manufacturing in construction - linking modeled and printed objects
- 10:30 Coffee Break
- 11:00 **Michael Weinmann, TU Delft, The Netherlands**
Towards the Metaverse - Efficient 3D Scene Capture and Streaming for Sharing VR-based Immersive Live-telepresence Experiences
- 11:30 **Arzu Cöltekin, FHNW University of Applied Sciences and Arts, Windisch, Switzerland**
Perception, cognition and human factors research in Extended Reality
- 12:00 **Closing Session**

Site of the seminar

Lectures and discussions will be held in the "Haus der Wirtschaft", Willi-Bleicher-Str. 19, 70174 Stuttgart.

Duration of the seminar

Beginning: Tuesday, September 13, 2022
End: Friday, September 16, 2022

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 (English or German).

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 **online** via our homepage or email: hotels@stuttgart-tourist.de

Registration and fees

Registration for the 58th Photogrammetric Week should be made by **online registration** (will be opened mid-March).

The participation fee is 500.00 Euro for registration and payment by **June 30, 2022** and 550.00 Euro after that date. For daily admission it is 250.00 Euro.

For Master and Bachelor students, under 27 the participation fee is 250.00 Euro. ID will be checked upon registration.

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.

