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TU Dresden / ISPRS
Panoramic Photogrammetry Workshop

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Digital panoramic cameras have found growing interest in photogrammetry in the past few years. Originally primarily being used for web-based animation purposes or surveillance, panoramic cameras have meanwhile reached a performance, which makes them an interesting data acquisition tool for a wide range of applications in photogrammetry. New developments in sensor technology have enabled the acquisition of very high resolution 360° panoramic images with an image format of up to almost one Gigapixel. Advances in display technology and computer graphics allow to visualize images of this size dynamically. Especially for recording indoor scenes, the use of panoramic cameras has proven to be beneficial. As a consequence, photogrammetrists have addressed the task of geometric modelling and calibration of digital panoramic imaging devices, allowing to use them for 3D measurement purposes.

This trend is enhanced by the emergence of terrestrial laserscanners, many of which do also offer 360° panoramic capabilities and combine range data acquisition with image data acquisition. Terrestrial laserscanners generate depth images allowing for direct 3D object reconstruction without the necessity of image matching. Moreover, the combination of panoramic imaging and laser scanning with an inertial measurement unit allows new application in high-resolution mobile mapping.

The workshop aims at bringing together system manufacturers, algorithm and software developers, data providers and users of panoramic devices in photogrammetry to report on recent developments in sensor and system design, mathematical modelling as well as data acquisition, processing and visualization schemes.

Terms of reference are:

- 360° panoramic camera design
- Panoramic route image acquisition systems
- Terrestrial laserscanning
- Sensor modelling and calibration
- 3-D object reconstruction
- Sensor integration and data fusion
- Automated data processing
- Visualization techniques

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