

Graduate School Course in Geomatics 2012

Range Imaging: Data Acquisition, Processing and Applications

October 17.-18.2012 Otaniemi, Finland

17 October, Prof. Derek Lichti, University of Calgary, Department of Geomatics Engineering, Canada

- 9:00 - 10:00 Introduction to range cameras (TOF)
- 10:00 - 10:30 Break
- 10:30 - 11:30 Error sources and calibration of range cameras
- 11:30 - 11:45 Break
- 11:45 - 12:15 Calibration of range cameras (bundle adjustment, self-calibration)
- 12:15 - 13:15 Lunch break
- 13:15 - 14:15 3D point cloud segmentation (range-based, PCA)
- 14:15 - 14:45 Break
- 14:45 - 15:45 Hands-on work
- 15:45 - 15:15 Break
- 16:15 - 17:00 Applications (e.g. deformation measurements hand gesture recognition, etc.)

18 October, Dr. Jan Böhm, University College London, Department of Civil, Environmental & Geomatic Engineering, UK

- 9:00 - 10:00 Introduction to Kinect (triangulation), accuracy tests for NUI sensors
- 10:00 - 10:30 Break
- 10:30 - 11:30 Applications: human body measurement
- 11:30 - 11:45 Break
- 11:45 - 12:15 Robot guided multisensory systems using range cameras
- 12:15 - 13:15 Lunch break
- 13:15 - 14:15 Data processing: from range data to a 3D model (for Building information Modeling, etc.)
- 14:15 - 14:45 Break
- 14:45 - 15:45 Hands-on data acquisition & modeling
- 15:45 - 15:15 Break
- 16:15 - 17:00 hands-on data acquisition & modeling (part 2)