![Universität Stuttgart]

Tutorial

Remote Sensing – From Basics to Advanced Methods

September 10th, 2017
Keplerstr. 17

56th Photogrammetric Week

www.ifp.uni-stuttgart.de/phowo

Program

10^{00} - 12^{00} Registration

Fundamentals of Optical and Radar Remote Sensing
Uwe Sörgel

12^{00} - 13^{30}

* Basics
  - Electromagnetic Waves
  - Interaction of EM wave with matter
  - Orbits and data downlink
  - Different kinds of resolution in remote sensing
* Optical sensors
* Radar
  - Characteristics
  - Range resolution
  - Real Aperture Radar
  - Synthetic Aperture Radar (SAR)

13^{30} – 14^{00} Coffee Break

SAR Interferometry
Uwe Sörgel

14^{00} - 15^{30}

* Basics of InSAR for DEM generation
  - Principle
  - Data acquisition geometry
  - Processing
  - From the images to the interferogram
  - Coherence
  - From phase to height
  - Errors
  - Examples of DEM acquisition
* Differential Interferometry
* Persistent Scatterer Interferometry
* Advanced Techniques

15^{30} – 16^{00} Coffee Break

Image Analysis and Object Labeling
Norbert Haala

16^{00} - 17^{30}

* Daily life examples and state-of-the-art
* Semantic segmentation of urban scenes
* classification of LiDAR and image data for enhancement of photogrammetric products
* Image Segmentation Overview
* K-Means
* Images as Graphs – Graph-Cut and Random Fields
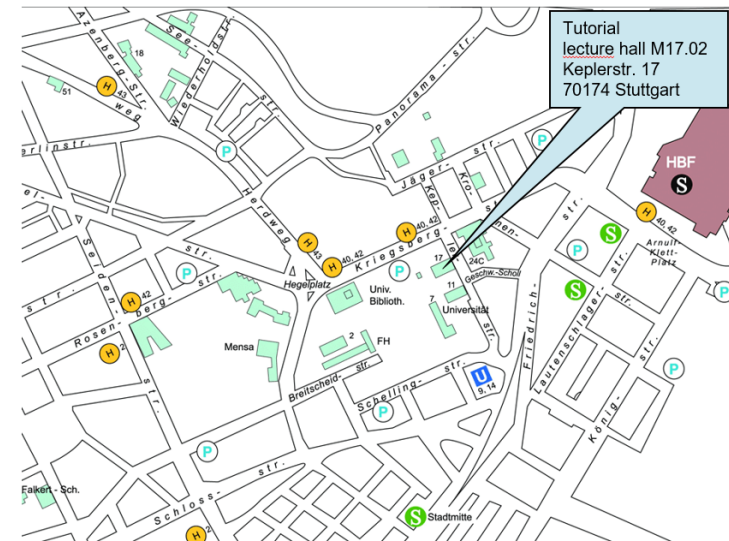* Convolutional Neural Networks

17^{30} End

Tutorial lecture hall M17.02 Keplerstr. 17 70174 Stuttgart

The participation fee for the tutorial is 150 Euro. This also covers the lectures notes (hard– and softcopy).