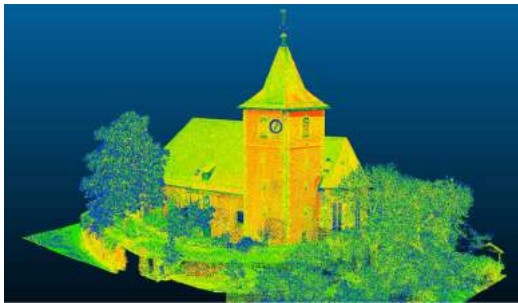




EuroSDR Educational Service 2022

The 20th series of EuroSDR e-learning courses will open on **February 14-15, 2022** with an **online pre-course seminar**. During the seminar, the background material of the four e-learning EduServ 2022 courses will be presented by the tutors and the learning e-platform will be demonstrated. **The four two-week e-learning courses** are scheduled from **February to June 2022**. Each course requires about thirty hours of online study.



Recent LiDAR technologies

Tutor: Gottfried Mandlbauer (TU Vienna)

The course tackles the recent progress in Airborne Laser Scanning (ALS), 3D mapping of topography and shallow water bathymetry, including the following topics: point density and spatial resolution, full waveform analysis (state-of-the art FWF processing techniques enable higher measurement precision and better target characterisation), multispectral laser scanning (scanners using laser wavelengths facilitate point classification by exploiting the radiometric content of the captured data), hybrid sensors (scanners and cameras mounted on the same platform enable joint processing of laser scans and image blocks), single Photon LiDAR (mapping sensors provide a higher area coverage at the prize of lower accuracy and higher outlier rate requiring robust point cloud filtering), topo-bathymetric LiDAR (beyond charting shallow coastal areas, laser bathymetry evolved to a powerful tool for high resolution mapping of the littoral area), UAV-LiDAR (sensor miniaturisation and progress in aviation technology has opened new close-range airborne applications).

Dates: February 28 - March 11, 2022

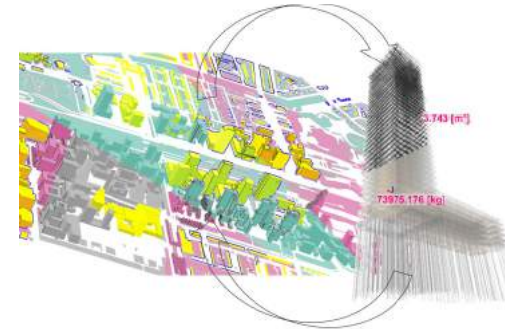


Working with Volunteered and Crowdsourced Geographic Information

Tutors: Peter Mooney (Maynooth University), Levente Juhász (Florida International University)

Up to recently, geographic data was exclusively available from authoritative sources such as National Mapping and Cadastral Agencies, professional companies, etc. The rapid emergence of Volunteered Geographic Information (VGI) and Crowdsourced Geographic Information (CGI) has challenged and changed this situation. VGI and CGI have transformed from being considered 'disruptive' and poor quality to well-known mainstream data sources used widely in industry, research, and other applications. The goal of this course is to introduce participants to VGI (and CGI), the current state-of-the-art research in these areas, methods for obtaining VGI/CGI data (API sources, processing GeoJSON, etc), and advanced topics such as assessment of the quality of these data. Participants are informed that a basic knowledge of a programming language is required to complete some practical exercises and assessments. Free and open-source software and openly accessible VGI/CGI will be used.

Dates: March 28 - April 8, 2022



Integration of 3D city models and BIM: GeoBIM

Tutors: Francesca Noardo, Ken Arroyo Ohori (Delft University of Technology)

A lot has been discussed about the integration of geoinformation (i.e. 3D city models) with BIM in the last years. The topic is wide, complex and technically demanding. According to the progress made in the last few years, both on the technical and on the theoretical side, this course will teach the basic knowledge on GeoBIM integration based on the needs of use cases and will show two examples of conversions procedures that support those use cases. After introducing the basics on 3D city models and Building Information Models, students will learn a method to compare two datasets (a 3D city model and a BIM) in order to analyse their integration possibilities and define the actions necessary to get to an integrated dataset, useful for a use case. The students will then practice with two conversion procedures, one Geo to BIM and one BIM to Geo in order to produce suitable data for two specific use cases.

Dates: May 2 - May 12, 2022



3D point cloud classification for mapping purposes

Tutors: Michael Koelle, Norbert Haala (University of Stuttgart), Eleonora Grilli, Fabio Remondino (Fondazione Bruno Kessler)

In recent years, point cloud processing techniques have been extensively investigated in the research community for various applications, and some commercial solutions start to be frequently used in daily practices. In particular, geospatial point cloud classification methods hold an important place, as assigning semantic information to 3D geodata allows for widespread use of such geospatial data. The course will present the latest developments and solutions for 3D point cloud classification, with particular emphasis on mapping needs, activities and purposes. Starting from traditional yet functional Machine Learning solutions, the course will then focus on more recent Deep Learning methods. Theoretical aspects and practical work will be coupled in order to provide a comprehensive and complete overview of the topic, from the classification of 2.5D DSM to 3D aerial point clouds.

Dates: May 23 - June 3, 2022

Fees

400 € for pre-course seminar + 1 or 2 courses | **500 €** for pre-course seminar + 3 or 4 courses
5 grants for PhD/MSc students covering admission fee are available (*see the application form on the EduServ website*).

For more information visit
<http://www.eurosd.net/education/current>

