



Università  
di Genova

DICCA DIPARTIMENTO  
DI INGEGNERIA CIVILE, CHIMICA  
E AMBIENTALE

## DICCA SEMINAR SERIES 2022

**EVA SAVINA MALINVERNI**- Università Politecnica delle Marche -DICEA - GAP

### **“Discover and share the digital environmental value by geo-ai challenges”**

The seminar aims to provide an overview of the innovative solutions that Geomatics, relying on the experiences of the GAP research team at UNIVPM, has addressed to the territorial/urban/architectural/archaeological fields, applying integrated techniques for data acquisition and combining multidisciplinary information to organize and make it available at different scales and different levels of use.

The integration between Geomatics and ICT has recently developed into the concept of Geospatial Artificial Intelligence (Geo-AI) which is a new paradigm for discovering geographical knowledge and beyond, useful for automatically solving the task of classification, object detection, semantic segmentation and more.

During the seminar, the main skills used in research and the different challenges faced in obtaining, managing, visualizing and making operational and useful geospatial data, will be illustrated. A focus will be on the territorial scale with the use of remote sensing and SLAM data in an integrated way for the 3D modelling of surveyed emergencies or to update the maps of archaeological sites or urban emergencies that are not always known (underground environments). An overview will be given of the development of AI algorithms for soil management and monitoring with thematic maps and change detection, which then directly produce GIS-ready solutions for precision farming and precision forestry. It will also describe how a better knowledge of emergency phenomena can be achieved through the analysis of data both from FSAR and INSAR active remote sensing sensors, in order to obtain 3D terrain models (DEM/DTM) and assess changes in the territory, for example in landslide monitoring, and from Lidar data, to assess the trend of cliffs or quarries. In the field of emergencies and safety, the development of platforms able of managing 'smart' data in urban locations affected by earthquakes, with the management of Big Data in geodatabases, should not be overlooked in the end.

Much of the analysis was carried out by means of opensource software to illustrate the potential of the research and to describe how it is possible to interface certain processes in a participatory and collaborative task.

**18/03/2022 – 4pm (CET)**

**Villa Cambiaso - Salone Nobile, Via Montallegro 1 (GE)**

**School of Engineering, UNIGE**

**Streaming on Teams channel (CODE: wlp9vyt) or using this link:**

**[shorturl.at/djuCl](https://shorturl.at/djuCl)**



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#### Short bio

Graduated in Architecture at the Polytechnic of Milan, PhD in Cartography and Topography, currently Full Professor of Geomatics. Her research is applied to different fields of Geomatics addressing both Cultural Heritage and the Landscape, from the use of digital tools to the management of increasingly complex data and their documentation in GIS/(H)BIM and 3D CityGML. Her teaching activity is very wide and is applicable at different academic courses (Master and Degree) at the Engineering Faculty, in Italian and English language. She is the author of more than 196 publications. The trends of last 20 years of research papers and Citations and the actual bibliographic indexes (Scopus) is 80 papers with 948 total citations and H-index 15. Member of different MAECI Project In collaboration with ISPC (ex-ITABC) – CNR, Rome, Italy: Jordan, Perù, Albania. Member in the past of the Management Committee in the COST Action "Cyberparks" combining geomatics skills with ICT techniques and now member of the COST Action "Underground Built Heritage as catalyzer for Community Valorisation". Leader for the MAECI of a Joint Research Project of Particular Relevance for Scientific and Technological Cooperation between Vietnam-Italy. PI for the ISFP-2019-AG-OPC - EU project, SIGNIFICANCE “Stop Illicit heritaGe traffickiNg wth artiFICiAl iNtelligenCE”. Member of ICOMOS - International Council on Monuments and Sites (Italy). Expert Member del CIPA-HD. Collaborate with the Interdepartmental Centre for Smart Farming (SFARM), with the Interdepartmental Centre for Landscape Research (CIRP) and with the Research and Service Centre for Digital Management for Construction (DiMaCo) of Università Politecnica delle Marche. She participates in ISPRS conferences, IGARSS-GRSS symposium, ICA, CIPA and ICC workshops and at EARSeL special working groups. Founder of two spin-offs: SI2G - Intelligent Information Systems for Geography, EVE - Enjoy Visual Experiences.

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