Università Tor Vergata, Roma

Ingegneria Civile e Ingegneria Informatica

GeoInformation PhD Curriculum

6^{th} 2014 GeoInformation Seminar

DISP meeting room, Ingegneria dell'Informazione, 1 Via del Politecnico
8 May 2014, starting at 15:00

Daniele Latini

Multifrequency analysis and potential of SAR polarimetric approach for oil spill detection and classification

Oil spill detection and classification is extensively investigated in remote sensing applications to risk management and environmental hazard mitigation. The unique opportunity represented by the large dataset available on the same event (DeepWater Horizon disaster in Gulf of Mexico) has been exploited to compare the capabilities of existing SAR systems.

An analysis of the SAR images acquired at L-, C- and X-band has been carried out, also in view of possible improvements for the next generation SAR products. The potential of polarimetry has been investigated through the Cloude-Pottier decomposition of full polarimetric L-BAND UAVSAR data. Given the efficiency of Neural Network algorithms in operational real-time and massive processing, a Multi-Layer Perceptron Neural Network has been developed and tested for classifying low-backscattering sea areas imaged by different X-band SAR systems.

Daniele Latini received the Laurea degree in Telecommunications Engineering in 2010 from the Tor Vergata University of Rome, where he is currently a PhD (GeoInformation curriculum) candidate. Since 2010, he has been with the Tor Vergata Earth Observation Laboratory, participating in remote sensing projects funded by the European Space Agency and the Italian Space Agency. He was a Visiting Student Researcher with the Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA.

His research activity has focused onto monitoring marine environment and coastal areas, with reference to oil-spill detection, coastline erosion, and subsidence due to water seepage. His interests are in geoscience and remote sensing and, in particular, in new-generation synthetic aperture radar products based on neural networks, polarimetry, and DInSAR techniques.

Alireza Taravat

SAR, hyperspectral and multispectral techniques for hydrocarbon detection

Oil release into the sea is nowadays a relatively frequent marine pollution incident that can have serious biological and economic impacts. In recent years, remote sensing demonstrated its effectiveness in marine oil spill detection and mapping, with significant added value with respect to in-situ methods.

The research project concerns the development of Neural Network methods to detect oil spills in SAR, multispectral and hyperspectral images. In particular, the investigation regards the sensitivity of a neural network algorithm in identifying oil spills and its robustness in discriminating them from lookalike occurrences.

Alireza Taravat holds a bachelor in Geology and a Master in Geoinformatics and at present he is pursuing his PhD (GeoInformation curriculum) at Tor Vergata University, Rome.

His areas of interests include remote sensing and its applications in geological and environmental science.

You are cordially invited to attend.