Ph.D. in Information Technology: Thesis Defence

DEIB Seminar Room

September 15th, 2017

2.30 pm

Roman FEDOROV – XXIX Cycle

"Exploiting Public Web Content to Enhance Environmental Monitoring"

Advisor: Prof. **Piero Fraternali**

Abstract:

Public web content, generated by users or by sensors, contains an enormous amount of latent knowledge, which can be used for a variety of purposes, such as event detection and predictive modeling.

The goal of the research presented in this thesis is to explore the methods for extracting such knowledge and building useful applications using low-cost, publicly available, multimedia web content, with reference to the field of environmental monitoring, which often suffers from the lack of significant and exhaustive input data. Specifically, the focus is set on monitoring snow cover in mountainous regions, that is, the spatial extent of earth surface covered by snow. The effort exploits visual data, terrestrial photography crawled from the public image sharing websites and publicly available webcams.

We present algorithms for retrieving and analyzing such data, and prove its usefulness thanks to a data-driven environmental model. The experiments confirm the feasibility of exploiting visual content publicly available on the web for environmental monitoring purposes.

PhD Committee:

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Prof. **Stefano Paraboschi**, Università di Bergamo

Prof. **Riccardo Torlone**, Università degli Studi Roma Tre