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DIPARTIMENTO DI GEOSCIENZE

Seminario "Dipartimento di Eccellenza"

The practice of Artificial Intelligence models for landslide characterization: from pre- to post-hazard exploration

Giovedì 17 ottobre 2024 – ore 16:30, Aula Arduino

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As we look at the current systems under our disposal to understand landslide propagation, it has become clear in the past decade or so that capturing their dynamics, kinematic behaviour, rate of movement and other characteristics for predictive purposes is challenging. Considering discussions on climate change and expansion of settlements on (at times, weak) hillslopes, the propensity to landsliding has increased considerably in the past years. Moving forward, it has become pertinent to explore avenues that offer rapid and automated solutions to identifying not only regions struck by landslides but also potential regions where landslides could surface. In that endeavour, this talk will demonstrate some of the state-of-the-art methods that have been applied in both directions of pre- and post-hazard landslide analysis. Catering to the former, current generation of time-series and susceptibility models will be showcased that have shown considerable advancements in forecasting and predicting the location and timing of slope failures, albeit separately. The latter (post-situation) is addressed by considering powerful computer vision models that specialize in dissecting signatures of landslides from remote sensing images and products, even during night-time and under cloud-cover situations. Coupled with morphological information of landslides, characterization of landslides to the extent of identifying their modes of movement, kinematic propagation, and volume estimates have also been realized with these recent models.