

AiTLAS: A toolbox of AI methods tailored for Earth Observation data

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The amount of satellite imagery data has been substantially growing since the start of the SENTINEL mission. However, applications of AI to EO data are still scarce. The main goal of the AiTLAS project is to facilitate the uptake of EO data by AI experts and vice versa - the uptake of (advanced) AI methods by EO experts. The main focus of AiTLAS is the development of a comprehensive toolbox with resources such as: benchmarking tools, ready-to-exploit models, tools for learning models de novo, and semantically annotated datasets prepared in a format that is easy to use by AI methods.

In this talk, we will illustrate the early developments of the AiTLAS project on a case study of learning deep models from satellite images scarcely labelled with ground-based land-use data. In particular, using large amounts of unlabelled satellite images, we will first learn (pre-train) in an unsupervised manner a deep model capable of extracting visual features, and then use a substantially smaller amount of labelled data for fine-tuning the model in a supervised manner. We will show that this approach has a strong competitive advantage as compared to using only labeled data for supervised learning of deep models.