

DEEP LEARNING FOR LAND COVER MAPPING

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FP-7 SIGMA project is part of Europe's contribution to GEOGLAM aiming to develop innovative methods and indicators to monitor and assess progress towards "sustainable agriculture", focused on the assessment of longer term impact of agricultural dynamics on the environment and vice versa [1]. SIGMA implements activities in Europe, Russia, Ukraine, China, Vietnam, Africa, Argentina and Brazil and is financed through the EC's Research Framework programme (FP7).

One of the main tasks of Space Research Institute within the project is identify, map and assess agriculture and crop land changes, globally, regionally and locally. We have developed four-level deep learning architecture for classification of LULC and crop types based on multi-temporal satellite imagery [2-6]. These levels are pre-processing, supervised classification, post-processing and geospatial analysis.

Results of deep learning technique implementation using Tensor Flow framework and Matlab will be analyzed. The proposed methodology allows one to automatically obtain land cover maps for the territory of Ukraine on a regular basis that is extremely important for many applications and this allows us to evaluate trends in land cover changes [7].

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