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Using AI4EOSC platform for integrated plant protection use case

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The AI4EOSC project will deliver an enhanced set of services for the development of Artificial Intelligence (AI) models and applications for the European Open Science Cloud (EOSC). One of the scenarios making use and validating the platform is related to enhancement of the integrated plant protection (agriculture sector).

The experiment aims to enhance capabilities of currently used disease detection methods based on mathematical model calculations, with new possibilities of ML/DL-based models developed and scaled on the AI4EOSC platform.
The use case about plant protection aims to determine the risk of disease in agricultural crops and determine the phases of plant growth and the condition of crops. The developed AI models are going to be integrated into existing national advisory platforms, operated by WODR (Wielkopolska Agricultural Advisory Centre in Poznań) and PSNC.

WODR and PSNC are currently operating a national advisory platform for farmers (eDWIN), which includes a network of meteorological ground stations, the Farm Management System, and ground observations of the occurrence of diseases. The current solutions are based on predictive mathematical models. The goal was to add to the current mathematical prediction ML/DL-based models used for early detection of the plant diseases. The designed tools in its first release enables individual calculations of occurrence probability for common crops and related disease:
Sugar Beet Leaf Spot Disease
Rye brown rust

Mathematical model results are being displayed to the user in the time domain up to the present day. Users as farmers or professional advisors will gain additional opportunities to identify and react to the presence of predicted diseases.
Target users are farmers, public administration, local governments, scientific institutes and institutions responsible for monitoring hazards in agriculture in terms of plant protection.
The number of the eDWIN platform users (where the outputs will be integrated) is exceeding currently 20,000 in Poland (Farmers, Advisors).

Topic

Needs and solutions in scientific computing: Artificial Intelligence

Primary authors: FOJUD, Adam (WODR); SMOK, Jędrzej (PSNC); PLOCIENNIK, Marcin (PSNC); KRZYZANEK, Mateusz (PSNC); BLASZCZAK, Michal (PSNC)

Presenter: PLOCIENNIK, Marcin (PSNC)

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