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Multifunctional platform and mobile application for plant disease detection

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Crop losses are the major threat to the wellbeing of rural families, to the economy and governments, and to food security worldwide. We present a multifunctional platform for plant disease detection (PDDP). PDDP consists of a set of interconnected services and tools developed, deployed, and hosted with the help of the JINR cloud infrastructure. PDDP was designed using modern organization and deep learning technologies to provide a new level of service to the farmer's community. The mobile application allowing users to send photos and text descriptions of sick plants and get the cause of the illness and treatment is part of PDDP. We collected a special database of the grape, wheat and corn leaves consisting of fifteen sets of images. We have tried different neural network architecture on this data and select the best one. The architecture and basic principles of the platform and networks are described and compared with other well-known solutions. We will show web-portal and mobile app and the way different types of users can work with them.

Keywords: siamese networks, convolutional neural networks, deep learning, plant disease detection

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