Interdisciplinary project - Digital Agriculture

Smartfield - AI for agricultural field management

IDP project for 2-3 students from the fields:
- Machine learning (1-2 students)
- App/web/ & industrial software development (1-2 students)

Job description

In many areas, AI is increasingly becoming an independent decision-making and support tool for a wide range of work. In agriculture, too, AI algorithms can take over the management of a farmer and promise to increase yields and reduce environmental impact.

The IDP is linked to the "Smartfield" (www.smartfield.ai) research project, in which an AI algorithm is to take over the decisions of a farmer and manage test fields independently. For the research project, an AI pipeline of different models was developed to take over all of the farmer's management decisions and maximize yields. From the choice of seed, fertilizer and crop protection, the models take over every decision.
The project has attracted industry-wide interest as it is the first AI-based autonomously managed field in the world. In the next project, the project will now be scaled up to manage several fields across Germany using the AI models. The integration of a chatbot is also planned in order to pass on the decisions to the users. The project is aimed at students who are interested in **scaling and optimizing AI models that run** "in production". The concept of ChatGPT serves as an example here, where a model exists but each user has their own history.

Work packages:
- (Brief) literature review & current research trends
- Scaling and optimization of AI models
- Integration of an LLM chatbot
- Optimization of user interface

Requirements (depending on the work package):
- (Good) knowledge of Python and Pytorch
- (Good) knowledge of machine learning
- Knowledge of server/web development
- Motivation for agricultural topics

Contact & Info:
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By arrangement		