

PROJECT INFORMATION

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| Project title: | Evaluating Plant Health and Ecosystem Conditions Using Multispectral Satellite Imagery and Machine Learning |
| Project ID: | 254 |
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PROJECT DESCRIPTION

The project “Evaluating Plant Health and Ecosystem Conditions Using Multispectral Satellite Imagery and Machine Learning” is part of the KISTE Project: AI Strategy for Earth System Data, <https://kiste-project.de>. The KISTE project aims to exploit recent developments in deep learning methods for sound environmental data analysis. It is split into five main topics: clouds, snow/ice, water, air quality, and vegetation. I am a doctoral student working on the vegetation topic.

So far, I have developed an explainable machine learning approach to investigate wilderness characteristics using multispectral satellite imagery: <https://arxiv.org/abs/2203.00379>. In the future, I would like to align these characteristics with measures of plant health and ecosystem conditions. The ICP Forests data would be beneficial for this purpose. In addition to plant conditions, information about the soil is also of interest, due to the impact on plants and trees.

The current idea of the project is: We want to predict plant and ecosystem conditions using satellite imagery with a focus on forests. For this, we need training data including the ICP Forests data. After training a neural network, we want to compare plant and ecosystem conditions in areas with different human influences. We want to investigate the effect of type and amount of human influence on ecosystem conditions.