

Project

Instance Segmentation of Plant Objects Using Deep Learning

Background

In recent years, deep learning techniques have shown great success in visual recognition and classification. Recently, CNNs have been used to classify plants and phenotype them using images of plants. The recognition of different parts of plants is becoming more and more necessary in the food industry, and for this reason, instance segmentation methods are used. One of the basic and important parts of any AI vision-based project is data preparation and annotation. Data in computer vision projects is images, and image annotation is crucial for this, which relies on machine learning to interpret images. Automatic image annotation can help retrieve images in a large-scale image database more quickly and accurately. We use a hybrid method based on the conventional image processing and semi-automatic deep learning-based methods for annotation

The purpose of this project is to Investigate and implement a well-performing instance segmentation method for recognizing different part of plants.

Tasks

- Conducting a literature search within the field of 2D instance segmentation. The focus should be on segmenting instances of complex-shaped objects like plants.
- An existing dataset of a plant should be annotated and developed for phenotyping with our developed novel method.
- Selecting a suitable method, based on the result of the literature search, and train and optimize it with the created plant datasets.
- Evaluating and analyzing the results of the network trained with the plant dataset.

Qualifications

- Understanding of machine learning and image processing.
- Good programming skills in python.

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