

INSTANCE SEGMENTATION OF AGRICULTURAL FIELDS

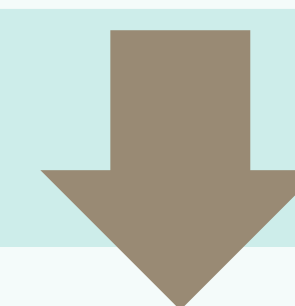
OBJECTIVE

Identifying Crop Type from Field images using Instance Segmentation and Image Classification models. This helps optimize crop yield and monitor crop health. It is also serves as a vital educational tool.

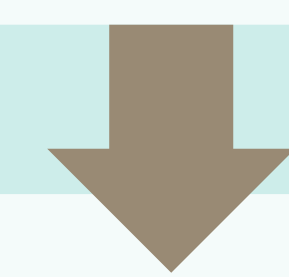
METHODOLOGY

High-resolution drone images of agricultural fields are obtained and meticulously labeled. Data preprocessing involves resizing, data augmentation, and splitting into training and validation sets. Meta's Segment Anything Model extracts leaf images, crucial for detailed analysis. The Inception V3 model is fine-tuned on a plant_leaves dataset from Mendeley Data, focusing on 10 plant species. Training is conducted with hyperparameter optimization, and evaluation metrics like accuracy and Intersection over Union (IOU) are used. This methodology ensures precise classification of crop types, aiding in efficient agricultural management.

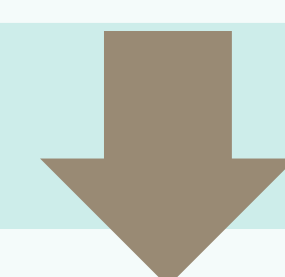
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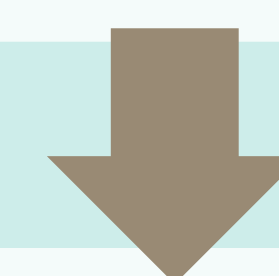
READS THE IMAGE



SEGMENTS THE
LEAVES FROM FIELD
IMAGES



CLASSIFIES THE
LEAVES INTO VARIOUS
CROP TYPES



SENDS THE OUTPUT
TO USER



ADVANTAGES

Our method uses advanced neural networks for precise crop classification, enabling efficient agricultural management and better yield. It's efficient -as it helps the farmers to have an exact view on the measure of the essentials required to maintain the fields and ensuring more crop production.

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