





Computer Vision for Feeding the Planet

AI Applications in Plant Phenotyping and Precision Agriculture

Ajit Nehe

Researcher

Crop Physiology and Breeding

Swedish University of Agricultural Sciences, SLU, Alnarp.

Context: Challenge in Agriculture

Climate change, increasing population, sustainable food production

Plant Phenotyping:

- Plant phenotyping in field condition:
 - manual labors, expensive, time consuming, and lack precision and repeatability



Precision agriculture

- Farmers and agriculture consultation companies
- Satellite based disease epidemic or yield prediction



Solution: Need to develop

- Multi-camera imaging system
- Computer vision algorithm
- Field rover/robotic system

Camera sensors: RGB, Hyper or multi spectral, thermal, LiDAR and fluorescence



Multi-angle imaging in field conditions and use of AI



Master Thesis: Computer Vision for Feeding the Planet (two stduents)

Thesis Goal

- To evaluate and identify the most economical and suitable camera sensor setup and specifications that maximizes image quality, minimizes noise and ensures consistent data acquisition under changing environmental conditions.
- Evaluating selected setup and configurations using existing or modified algorithms in field/control conditions for plant phenotyping.



Project collaborators:







Ajit Nehe Swedish University of Agricultural Sciences, Alnarp <u>ajit.nehe@slu.se</u>



Marc Ahlse Sony Nordic, Lund marc.ahlse@sony.com

SONY

Mikael Nilsson LTH, Lund University, Lund <u>mikael.nilsson@math.lth.se</u>



Thanks for your attention