



Summer School

Image Analysis for Plant Phenotyping

Are you looking for a complete overview of image analysis techniques for automatic plant phenotyping? The Summer School will provide a mixture of underlying theory and practical hands-on training. You will have the opportunity to work on real plant image analysis problems to challenge you to directly apply and combine the theory in practice.

Target group

This Summer School is primarily intended for researchers working on automatic phenotyping and technical experts in breeding companies who use, or plan to use, image analysis. If you have doubts whether you belong to the target group or have enough relevant basic knowledge, please don't hesitate to contact us!

Results

After following this Summer School you know about the latest insights in imaging techniques applied to plant phenotyping. Furthermore, you will be able to apply it in daily practice in your experiments.

Date **3 – 7 July 2023**

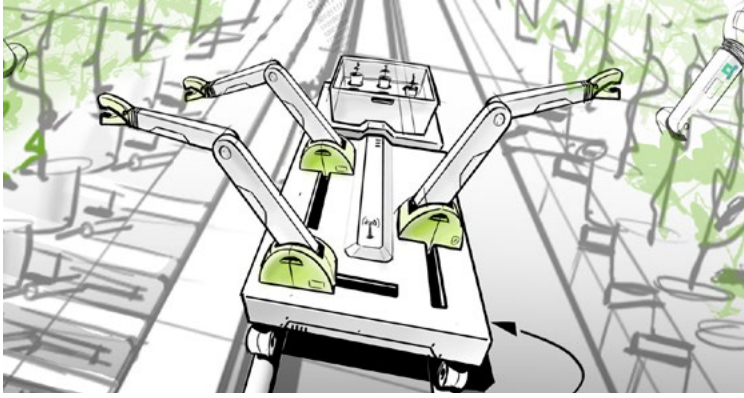
Location **Wageningen Campus**

Course leaders Dr. Gerrit Polder, Rick van de Zedde MSc and dr. Gert Kootstra

Outline and topics

In this program, a mixture of lectures from experts from Wageningen University & Research and leading international experts in this domain, are combined with hands-on training. During the Summer School there is ample time to discuss the issues of importance to your company/institutions with the experts. The following subjects will be addressed:

- Image acquisition
- Noise filtering
- Segmentation and image shape features
- Machine learning
- Deep learning
- 3D vision
- Imaging, data and practicals



Programme

Day 1: Monday 3 July 2023

Introduction day + image acquisition

- Welcome and introduction to the Summer School
- Introduction to image analysis and phenotyping
- Image sensors and acquisition
- Assignments and practice with project cameras

Day 2: Tuesday 4 July 2023

Noise filtering

- Noise and image enhancement with assignments
- Industry perspective
- Guided tour research facilities at NPEC (Netherlands Plant Eco-phenotyping Centre)

Day 3: Wednesday 5 July 2023

Segmentation and image shape features

- Introduction to segmentation and assignments
- Machine learning
 - Classical Machine learning: K-MEans, Linear discriminant, svm, neural network, supervised/ unsupervised, clustering
 - Lab session image shape features and machine learning

Day 4: Thursday 6 July 2023

Neural networks and deep learning

- Deep learning
- Lab segmentation II (segmentation using neural networks) with Python
- Hyperspectral imaging
- 3D vision
- 3D interactive Plant phenotyping Marvin
- Lab session 3D data analysis/interpretation

Day 5: Friday 7 July 2023

Imaging, data and practicals

- Imaging and data management
- Data analysis and application
- Questions & answers
- Evaluation and certification ceremony

Practical information



€ 2,895,- er person for the industry and € 1895,- for PhD students. The course fee covers tuition, course materials, lunches, coffee/tea, refreshments and welcome diner.



Max. 35 participants.



Based on your attendance and participation you will receive a certificate after the programme is finished.

Registration

Enrollment is possible till 16 June, or if the maximum number of participants is reached. Register via wur.eu/academy.

[Register](#)

Wageningen Academy

We develop and organise courses for professionals, based on Wageningen University & Research expertise.

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