Registration now open for the
CSH Summer School 2026
Advanced Field Monitoring Using CNNs and Remote Sensing Technologies

with Dr. Robin Mink and Pirmin Stöhr (SAM-DIMENSION GmbH)
June 12-13, 2026
Hohenheim

Overview

Join us at the CSH Summer School 2026 to gain hands-on experience in agricultural remote sensing, drone operations, and AI-driven spatial data analysis.

The CSH Summer School 2026 provides an in-depth, practice-oriented training in the fields of remote sensing, machine vision, and drone-based data collection. Aimed at students and future agricultural innovators, the two-day course is designed to build both foundational and advanced skills in creating precise spot spray maps using artificial intelligence. The program takes participants through the complete technical pipeline, starting from the physics of sensor technology and flight planning, through executing real-world data collection missions, and finally analyzing the collected data using AI image vision algorithms.

Throughout the course, participants will gain direct experience with the workflows required to translate high-resolution aerial imagery into actionable agricultural data. This includes hands-on drone operations, collecting ground truth data with RTK GPS rovers, and preparing data using Label Studio. By teaching a thorough understanding of Convolutional Neural Networks (CNNs) and practical photogrammetry, the course bridges the gap between AI theory and agricultural reality. The program culminates in a final field validation trip, offering the opportunity to navigate directly to identified weeds using the newly generated shapefiles.

The learning goals are as follows:

- Understand the principles of remote sensing: Learn how to select the right platforms and sensors for the use case.

- Execute drone missions: Plan flights and collect accurate ground truth data using drones and RTK GPS rovers.

- Master data preparation & annotation: Preprocess raw imagery and create high-quality AI training datasets by accurately labeling crops versus weeds.

- AI mechanics & processing: Grasp the foundational math behind Convolutional Neural Networks (CNNs) and utilize the SAM Gate system to process agricultural imagery.

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- Apply photogrammetry and field validation: Transform detected plant data into actionable shapefiles (.shp) and validate the generated maps directly in the field using handheld RTK devices.

Lecturers

Robin Mink is the founder of SAM-DIMENSION and has a PhD in plant protection and precision agriculture. **Pirmin Stöhr** is a project manager at SAM-DIMENSION. The lecturers are both dedicated to translating complex smart-farming technologies into practical, field-ready skills.

SAM-DIMENSION GmbH is a young and innovative precision farming start-up, developing intelligent computer vision techniques and combining them with data science to enable effective field surveys. As one of the leading solutions in this field, SAM-DIMENSION focuses on highly accurate, large-scale applications, such as aerial mapping for single-plant crop protection.

The Schedule

University Hohenheim, 70599 Stuttgart, PC room 1 (Building 04.21).

Day 1: June 12, 2026, 8h30 - 17h30:

8h30 - 10h00	Intro and Remote Sensing Theory
10h00 - 10h30	Coffee Break
10h30 - 12h00	Mission Planning & Physical Background
12h00 - 13h00	Lunch Break
13h00 - 15h30	Field Trip: Data Collection
15h30 - 16h00	Coffee Break
16h00 - 17h30	Data Ingest

Day 2: June 13, 2026, 8h30 - 17h30:

8h30 - 10h00	Annotation Strategy and Labeling
10h00 - 10h30	Coffee Break
10h30 - 12h00	SAM Gate Workflow
12h00 - 13h00	Lunch Break
13h00 - 14h30	Deep Learning (CNNs)
14h30 - 15h30	Photogrammetry
15h30 - 17h00	Field Trip: Data Validation
17h00 - 17h30	Wrap Up

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Target Audience

The workshop addresses students and researchers from all fields and at all career stages who are interested in remote sensing, machine vision, and drone-based data collection. The workshop will be conducted in English. Participants require basic knowledge in Python and R at the level of the course "Tools for AI & Data Science: Introduction to Python, R & SQL".

Fees, Devices and Credits

Interested participants can register for the workshop via weiterbildung.uni-hohenheim.de until May 20, 2026. For members of the University of Hohenheim, there are no tuition fees.

For external participants, the following tuition fee structure applies:

Group	Through May 1, 2026 (prices in EUR)	After May 1, 2026 (prices in EUR)
Students	50.00	100.00
PhD students / Staff Members	120.00	150.00
PostDocs	160.00	200.00
Professors	240.00	300.00

Tuition fees must be paid within 14 days of the registration deadline; otherwise, interested participants will be excluded from participation. An email with detailed payment instructions will be sent to participants after registration and before the workshop. Registration is binding. Fees transferred are non-refundable.

Participants should bring their own laptop (incl. charger) with a working Linux, Mac, or Windows/WLS installation.

At the conclusion of the Summer School, participants will receive a certificate for the number of hours attended. No ECTS credits can be awarded for participation.

Contact

For any further information, please contact:
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