Project in the study focus "Ecosystem Analysis and Modelling",
Winter semester 2025/2026

Topic posed by the Department Ecoinformatics, Biometrics and Forest Growth:

Photogrammetric capturing and analysis of the 3D structure of young trees

This student research project aims to develop a measurement and analysis pipeline for structural phenotyping of small trees using point clouds generated through photogrammetry.

The project involves designing and implementing both hardware and software for the semi-automated capture of input photos, with a focus on utilizing open-source tools to create a fully automated workflow for data processing after image acquisition. Following the generation of point clouds, the pipeline will include downstream data analysis to inform and parameterize a growth model of the measured trees. As a potential future expansion, the setup will also enable efficient repeated measurements over time to study tree growth patterns.

The project will be part of an ongoing research project about investigating highland and lowland phenotypes of spruce (Picea abies) for breeding trees with enhanced robustness.

Supervisor: Thomas Hay

Task for 1 or 2 students