# Abstract

This bachelor thesis focuses on the processes of acquiring and analysing image data in the field of microscopy, with an emphasis on the dynamics of intracellular structures in plant cells. The introductory section describes techniques such as fluorescence labeling of cells and the acquisition of image data using various microscopic techniques. The main part of the thesis deals with the analysis of image data. Three analytical methods were described: Kymography, Single Particle Tracking, and Autocorrelation. Each method is supplemented with an overview of relevant software tools. Information for the thesis was gathered from scientific articles, online user guides, and instructional videos. Overall, the bachelor thesis provides a comprehensive overview of the processes involved in acquiring and analysing image data in plant cell microscopy.

**Key words:** in vivo labelling, confocal microscopy, TIRF/VAEM microscopy, image analysis, cytoskeleton dynamics, endomembrane compartments dynamics, kymogram, kymography, Single Particle Tracking, SPT, autocorrelation, plant cells