



## Bachelor-/Masterthesis/Projectwork

### Topic:

### „Early detection of microbial spoilage of fruit/vegetables using multivariate sensor analysis“



**Please note:** If your study regulations allow, the thesis can be written in German.

### Motivation

For fresh foods such as fruit and vegetables, deterioration due to microbial spoilage is a major reason for disposal. In order to address this problem, a non-destructive method is being developed as part of this work that enables early detection of the microbial condition of fruit and vegetables.

### Goals

The main objective of this work is to develop a data-based early warning system for microbial spoilage of seasonal fruit or vegetables. For this purpose, non-destructive measurement data (e.g. gas profiles, weight loss, color changes) will be combined with microbiological analyses. The aim is to statistically record relevant correlations between the physical-biochemical parameters and microbial parameters and to develop models for predicting spoilage.

**Bachelor's thesis:** The focus is on experimental data collection, statistical analysis (e.g. correlations) and interpretation of the results.

**Master's thesis:** Building on the data collection, an in-depth analysis is carried out using modern machine learning methods. This includes the implementation and evaluation of classification and prediction models for the detection of microbial spoilage. The work requires a basic understanding of food handling and sensory measurement technology. Previous knowledge of programming (e.g. Python) and data analysis is also required for the Master's thesis.

### We offer

- Innovative work in the area of food quality monitoring
- Insights into modern sensor technology, data processing and AI
- Excellent working environment and support

### Contact

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