



Bachelor-/Masterthesis/Projectwork

Topic:

„Using machine learning for anomaly detection
in a specific food process“



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

Motivation

In the food industry, deviations from the desired food quality or process parameters often occur. To prevent those undesired problems, the first step must be understanding and analyzing the process. Using domain knowledge, one way to do that is to digitally map the process, including the relationships between the (raw) materials, machines, and process steps. Process mapping can enable a broad analysis of process anomalies. However, domain knowledge is needed to understand (micro)biological, physical, and chemical changes in the food. Hence, both areas of knowledge have to be connected.

Goals

This thesis objective is the analysis of existing data sets of a specific food process using current machine learning (ML) techniques. This includes designing or adapting an ML pipeline to preprocess the data and test different ML techniques, such as artificial neural networks. Students are expected to know about programming in Python and ideally some knowledge of ML, but this can be acquired in advance of the work. The required depth as well as the scope of the analyses and evaluations will be determined in consultation with the supervisors depending on the final goal (Bachelor or Master).

We offer

- **Work in an environment of innovative research**
- **Opportunity for hands-on work related to machine learning**
- **Excellent working environment and intensive supervision**

Contact

M.Sc. Dana Jox

dana.jox@uni-hohenheim.de

<https://foodinformatics.uni-hohenheim.de/>