Bachelor-/Master Thesis

Implementation of a machine learning method for detecting product defects in breaded poultry products

Motivation

Like many other industries, the food industry is moving towards more automation and autonomous process control. In order to keep variations to a minimum, production processes should be in a "steady-state" as far as possible, with various parameters being monitored using a range of sensors.

However, there is room for improvement in many cases, as fluctuations often occur despite precise monitoring and the resulting effects in the processes can often not be fully explained. This may be due to the fact that not all essential data is recorded or that existing data is not examined in sufficient detail

Goals

As part of this thesis, existing data sets consisting of image and video material from the current research of the FG Food Informatics (150L) on the topic of "Interpretable data-driven analysis of product quality fluctuations" are to be evaluated. The aim is to implement an algorithm that is able to recognize the product (a type of poultry schnitzel) in the images and differentiate between intact and defective products. This requires labeling the data and training a corresponding model. Students are expected to have knowledge of programming in Python, ideally also initial knowledge of ML, but this can be acquired in advance of the work. The required depth and scope of the analyses and evaluations will be determined in consultation with the supervisors depending on the degree objective (Bachelor or Master).

We offer

- **Work in the environment of innovative research**
- **Possibility of practical work related to machine learning**
- **Excellent working environment and intensive support**

Contact

Jun.-Prof. Dr. Christian Krupitzer
christian.krupitzer@uni-hohenheim.de
https://foodinformatics.uni-hohenheim.de/

Daniel Einsiedel (150L)
Daniel.Einsiedel@uni-hohenheim.de
https://foodinformatics.uni-hohenheim.de/