UNIVERSITÄT HOHENHEIM

Institut für Lebensmittelwissenschaft und Biotechnologie
FG Lebensmittelinformatik (150L) **Jun.-Prof. Dr. Christian Krupitzer**

Master thesis/Project work

to the topic:

„SpicesAI – Automated Image Recognition of Herbs and Spices for the Identification of Foreign Spices in Blends“

Motivation

The visual differentiation of herbs and spices is particularly difficult in the case of chopped/ground products and mixtures and has so far relied heavily on manual inspection. Image-based artificial intelligence (AI) methods offer the potential to automatically classify spices/herbs and to reliably detect foreign spices/herbs as part of quality control. However, this requires suitable and standardized image acquisition as a basis for robust AI models..

Goals

The aim of this master's thesis is the development and evaluation of a machine learning approach for the classification of individual herbs, spices, and mixtures based on image data provided by an industrial partner. Building on a systematic literature review of existing methods in image-based spice and food classification, suitable machine learning and deep learning approaches will be selected. These approaches will be implemented and applied to distinguish individual spices as well as to detect foreign spices in mixtures. The performance of the models will be evaluated using appropriate metrics. Finally, a prototypical system for automated image recognition of spices will be developed.

We offer

- **Innovativer project in the field of digitalization of food processing**
- **Opportunity to work on a project with high practical relevance**
- **Excellent working environment and intensive supervision**

Contact

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

Daniel Einsiedel, M.Sc.
daniel.einsiedel@uni-hohenheim.de
https://foodinformatics.uni-hohenheim.de/