# Scope of the Project

Adhering to a healthy and balanced diet can decrease the risk of non-communicable diseases, such as type-2 diabetes, heart disease and cancer. In order to monitor and assess a person’s dietary habits, real-time, intuitive, accurate and cost-efficient dietary assessment approaches are of utmost importance. With the advances in Artificial Intelligence (AI) and machine learning (ML), systems that can automatically output the energy and the nutrients of a consumed meal based on food-related multimedia data (e.g., RGB images, video), have replaced traditional methods, such as 24-hour recall and food frequency questionnaires. The first step of an automatic system is usually the distinction between images that contain food items and images that are irrelevant for this task.

# Data

The dataset consists of 3583 food images from the UNICT-FD889 dataset [1] and 4804 food and 8005 non-food images downloaded from Flickr [2].

# Experiment

You will have to train a CNN in order to perform food/non-food classification. You can select a pretrained CNN or create your own, and also augment the data. Additionally, you will have to output the class activation maps (cam) or gradient class activation maps (grad-cam) of your model, to visualize where the CNN is “looking”.

# References

1. Farinella, G. M., Allegra, D., Stanco, F., & Battiato, S. (2015, September). On the exploitation of one class classification to distinguish food vs non-food images. In International Conference on Image Analysis and Processing (pp. 375-383). Springer, Cham.
2. Farinella, G. M., Allegra, D., & Stanco, F. (2014, September). A benchmark dataset to study the representation of food images. In European Conference on Computer Vision (pp. 584-599). Springer, Cham.