

A review of handcrafted computer vision and deep learning approaches for food recognition

ABSTRACT

Food recognition is an emerging research area in object recognition which has grown substantially in the era of the smartphones and social media services. The advancement of mobile phone camera at a reasonable cost has allowed people to photograph their food intake and to share their excitement when having a meal on social media. Food recognition provides automatic identification of the category of foods from an image and can estimate the caloric and nutritional content in order to assist dietary assessment in treating diet-related chronic diseases. Hence, there is demand for novel tools able to provide an automatic, personalised, and accurate dietary assessment through food recognition algorithms. In general, food recognition is a challenging task due mainly to very small inter-class similarities which make foods from different categories look identical, and large intra-class differences of food objects which make foods in the same category look different. This paper provides a review on the research conducted in food recognition based on hand-crafted based computer vision and deep learning techniques and discuss the problems as well as the future works in this area.