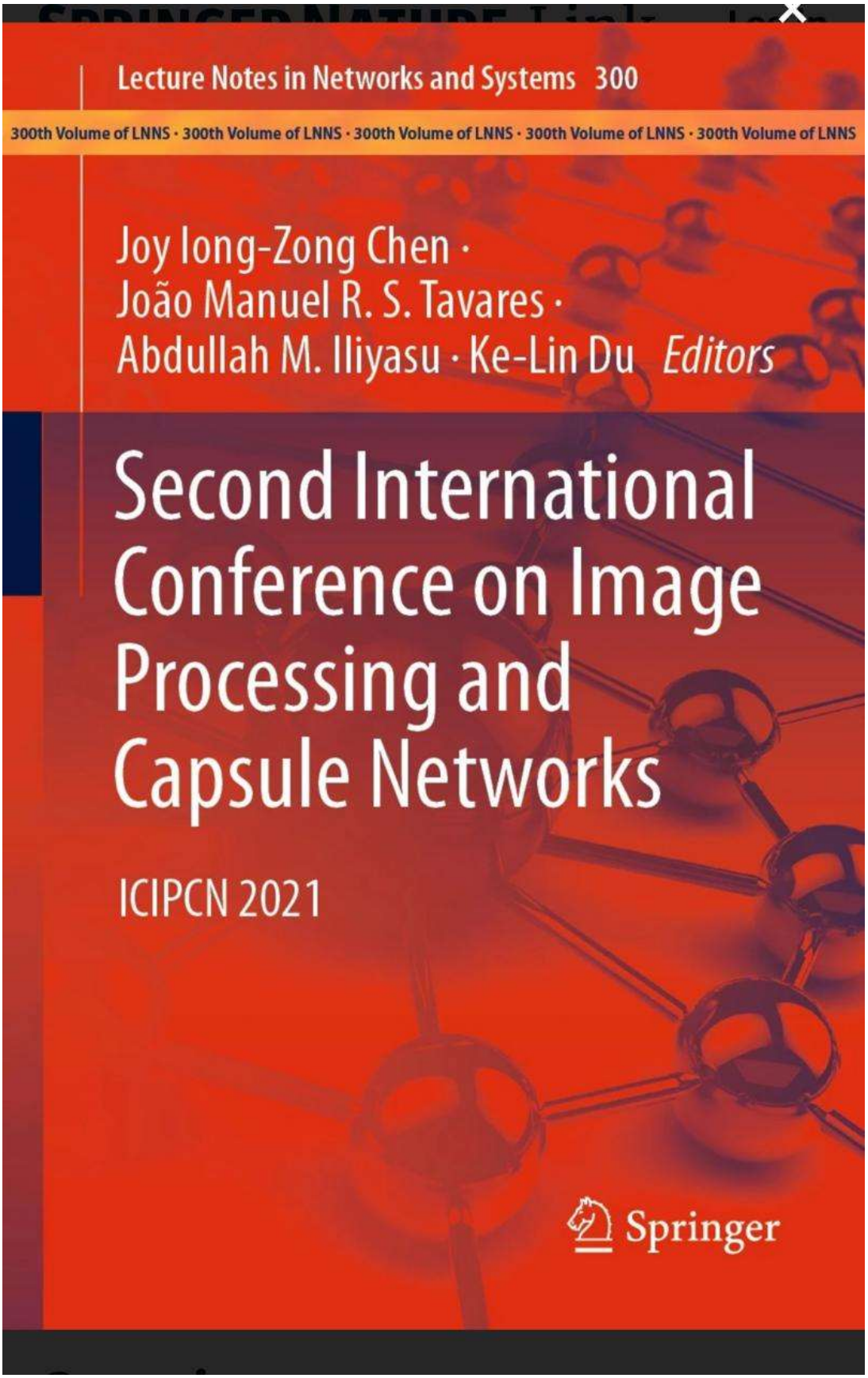
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An Algorithm for Pre-processing of Areca Nut for Quality Classification

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Abstract

Areca nut is an important crop in the coastal belt of India and has a high commercial value. The segregation of Areca nut into various categories depending upon the quality is a long-drawn process involving large number of manual labours, thus resulting into enormous delay in payment to the farmer. The scarcity of skilled labour makes the process of segregation even more difficult. In this paper, the proposed technique gives an algorithm for pre-processing of Areca nut for its quality classification. Firstly, the image acquisition is done using a Raspberry Pi 3 B+ board and a 5 Mega pixel Pi camera module. The pre-processing of the captured image involves enhancement of the image quality by way of using image filtering, contrast enhancement and image segmentation. For cropping the exact nut image, the nut boundary is detected using Canny edge detection and K-means segmentation algorithm. In this paper, we explore eight different techniques of image pre-processing and it has been observed that Contrast-Limited Adaptive Histogram Equalization, Anisotropic Diffusion Edge Preserving Filter and K-Means segmentation gives best results for applications involving Areca nut segregation.