An Approach for Oil Palm Tree Detection Using Multispectral Imagery

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Oil palm tree is one the economical crop of Thailand. In order to maximize the productivity from planting, appropriate management of oil palm farm is highly required. The basic required information for oil palm tree management is the amount of oil palm tree in the planting area. In order to obtain such information, we proposed an approach for palm tree detection. As a result, the amount of oil palm trees in an area can be counted. The proposed method is based on the use of multispectral imagery for the computation of vegetation index i.e. NDVI. The rank transformation is then applied to enhance the discrimination between the oil palm tree and the background. We hypothesize that the location of the oil palm trees are located at the local peak of the index image after the rank transformation is applied. To perform the local peak detection, the non-maximal suppression is employed. The performance of the proposed method is tested on several multispectral images and the accuracy of the detection result is reported.

Keyword : Oil palm tree, detection and counting, image processing