Automated image analysis and improvisations to manage palm oil plantation

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Abstract

Palm oil industry plays an essential role in South-East Asian agricultural commodity sector as it contributes to the substantial gross domestic product of the country. However, with the advent of climate change and massive deforestation, the disease and malfunctioning in growth of palm tree has increased. Therefore, it has become essential to detect any form of disease in palm oil plantation which can hamper its productivity as it can cause a serious problem to the countries whose economic conditions are primarily dependent upon palm oil plantations. Hence, early detection of disease from the initial stage is crucial to the production of palm oil. In this regard, the proposed manuscript highlights the importance of image segmentation and also proposes some improvisations in palm oil plantation which will be helpful in managing the palm oil commodity business. © 2020 IOP Conference Series: Materials Science and Engineering.

2. Fungal diversity in oil palm leaves showing symptoms of Fatal Yellowing disease.
   [DOI](http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0191884&type=printable)

3. Spectral features selection and classification of oil palm leaves infected by Basal stem rot (BSR) disease using dielectric spectroscopy.

4. Landscape Management Effects on Pests, Diseases, Weeds and Biocontrol in Oil Palm Plantations-A Review.

5. Analysis of airborne hyperspectral image using vegetation indices, red edge position and continuum removal for detection of ganoderma disease in oil palm.

6. Trace elements and radionuclides in palm oil, soil, water, and leaves from oil palm plantations: A review.
   [DOI](http://www.tandf.co.uk/journals/titles/10408398.aspx)

7. In Situ Tropical Peatland Fire Emission Factors and Their Variability, as Determined by Field Measurements in Peninsula Malaysia.

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Yield gaps in oil palm: A quantitative review of contributing factors (Open Access)
www.elsevier.com/inca/publications/store/6/0/0/1/0/8
View at Publisher

Detection of plant leaf diseases using image segmentation and soft computing techniques (Open Access)
http://www.elsevier.com/journals/information-processing-in-agriculture/2214-3173#
doi: 10.1016/j.inpa.2016.10.005
View at Publisher

10. Arya, M.S., Anjali, K., Unni, D.
Detection of unhealthy plant leaves using image processing and genetic algorithm with Arduino
http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=8369618
doi: 10.1109/EPSCICON.2018.8379584
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A fuzzy clustering segmentation method based on neighborhood grayscale information for defining cucumber leaf spot disease images
www.elsevier.com/inca/publications/store/5/0/3/3/0/4
doi: 10.1016/j.compag.2017.03.004
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A recognition method for cucumber diseases using leaf symptom images based on deep convolutional neural network
www.elsevier.com/inca/publications/store/5/0/3/3/0/4
doi: 10.1016/j.compag.2018.08.048
View at Publisher

14. Jollife, I.T., Cadima, J.
Principal component analysis: A review and recent developments (Open Access)
http://rsta.royalsocietypublishing.org/content/374/2065/20150202.full.pdf
doi: 10.1098/rsta.2015.0202
View at Publisher
Demšar, U., Harris, P., Brunsdon, C., Fotheringham, A.S., McLoone, S.
Principal Component Analysis on Spatial Data: An Overview (Open Access)
doi: 10.1080/00045608.2012.689236
View at Publisher

Firdousi, R, Parveen, S
Local Thresholding Techniques in Image Binarization

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Fast Image Segmentation Using Two-Dimensional Otsu Based on Estimation of Distribution Algorithm (Open Access)
http://www.hindawi.com/journals/ece/
doi: 10.1155/2017/1735176
View at Publisher

Ali, M., Siarry, P., Pant, M.
Multi-level Image Thresholding Based on Hybrid Differential Evolution Algorithm. Application on Medical Images
http://www.springer.com/series/7092
doi: 10.1007/978-3-662-54428-0_2
View at Publisher

Akhtar, M.N., Saleh, J.M., Awais, H., Bakar, E.A.
Map-Reduce based tipping point scheduler for parallel image processing
https://www.journals.elsevier.com/expert-systems-with-applications
View at Publisher

Hancock, P.J.B., Baddeley, R.J., Smith, L.S.
The principal components of natural images (Open Access)
doi: 10.1088/0954-898X_3_1_008
View at Publisher

Tremeau, A., Borel, N.
A region growing and merging algorithm to color segmentation
www.elsevier.com/inca/publications/store/3/2/8/
doi: 10.1016/S0031-3203(96)00147-1
View at Publisher

Yin, P.-Y., Wu, T.-H.
Multi-objective and multi-level image thresholding based on dominance and diversity criteria
http://www.elsevier.com/wps/find/journaldescription.cws_home/621920/description#description
doi: 10.1016/j.asoc.2017.01.019
View at Publisher
23 Prasetyo, E., Adityo, R.D., Suciati, N., Fatichah, C.
Mango leaf image segmentation on HSV and YCbCr color spaces using Otsu thresholding
doi: 10.1109/ICSTC.2017.8011860
View at Publisher

24 Gu, S., Zuo, W., Xie, Q., Meng, D., Feng, X., Zhang, L.
Convolutinal sparse coding for image super-resolution (Open Access)
doi: 10.1109/ICCV.2015.212
View at Publisher

25 Gedraite, E.S., Hadad, M.
Investigation on the effect of a Gaussian Blur in image filtering and segmentation
(2011) Proceedings Elmar - International Symposium Electronics in Marine, art. no. 6044249, pp. 393-
396. Cited 41 times.
ISBN: 978-953704412-1
View at Publisher

26 Georgi, C., Spengler, D., Itzerott, S., Kleinschmit, B.
Automatic delineation algorithm for site-specific management zones based on
satellite remote sensing data (Open Access)
www.wkap.nl/journalhome.htm/1385-2256
doi: 10.1007/s11119-017-9549-y
View at Publisher

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