Rice Grain Quality Analysis using Deep Learning

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Abstract: *The paper presents an automated system for classifying rice grains based on digital image processing techniques. Currently, rice quality is assessed through visual inspection, which is tedious, time-consuming, and requires human expertise. To overcome these issues, the proposed system captures images of rice grains using a non-contact image processing technique. The images are pre-processed, segmented, and analyzed using MATLAB to extract features for quality assessment. The system utilizes two different classifier algorithms, Neural Networks (NN) and Support Vector Machine (SVM), to classify the rice based on the extracted features. A comparative study was conducted to evaluate the effectiveness of the two methods, and the results indicate that the SVM-based classification outperforms the NN-based classification. Overall, the proposed system offers a more efficient and accurate method for assessing rice quality, reducing the need for human expertise and physical fitness of inspectors. This could have significant implications for the rice industry, leading to increased efficiency and accuracy in rice quality assessment and improved market outcomes.*

Keywords: Automated System, Rice Quality Assessment, Digital Image Processing, Non-Contact Technique, Neural Networks, Support Vector Machine, SVM-based Classification, Efficiency, Accuracy.

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