Abstract

The shape and size estimation done without separating the touching and overlapping seeds lead to inaccurate values of size and shape. The watershed segmentation and morphological processing suffers from problems like over segmentation and large processing times respectively. An algorithm based on concavities is developed and tested for segmentation of occluded paddy grains. The first step distinguished each seed in a binary image of a grain sample as either an isolated seed or a group of occluded seeds by using the shape properties. The next few steps separated individual seeds in binary images of occluded kernels. Split lines were drawn by the algorithm through the split points which were determined by evaluating the concavity of the corner points detected along the boundary, and selecting those points at which the concavity is highest. This approach is compared with morphological operations and watershed segmentation and the obtained results show that this method is effective in separating the touching seeds. And also after the separation the shape features extracted do not differ a lot from the actual shape features.
References

Digital Separation of Occluded Seeds using Image Analysis


Index Terms

Computer Science
Image Processing

Keywords

Concavity, Occluded seeds, Segmentation, Split line and Watershed