

Sample Images Processed by P-TRAP and Some Other Approaches

1- The Oversegmentation Problem of the Watershed Transform.



Sample images

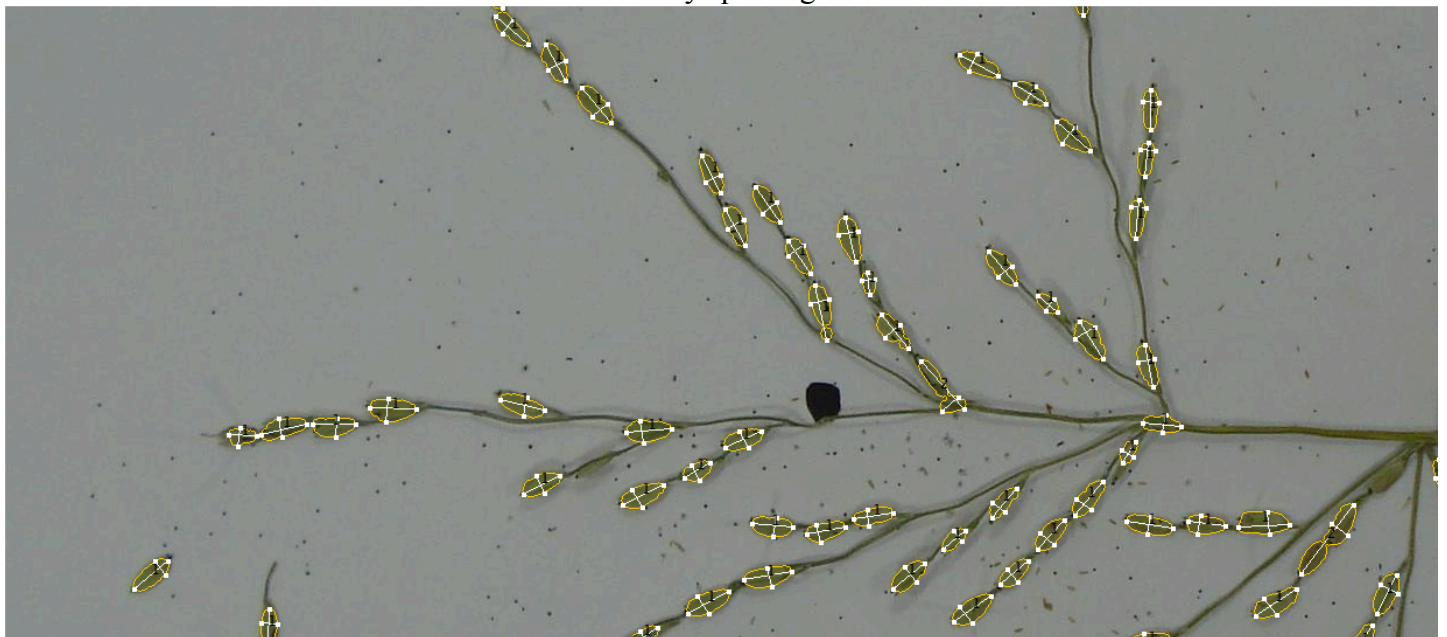
After applying the mathematical opening to the binary version of the sample with a disk of the grain size

After applying the watershed transform to the opened image.

2- P-TRAP Grains Detection for both On-branch and Spread Grains

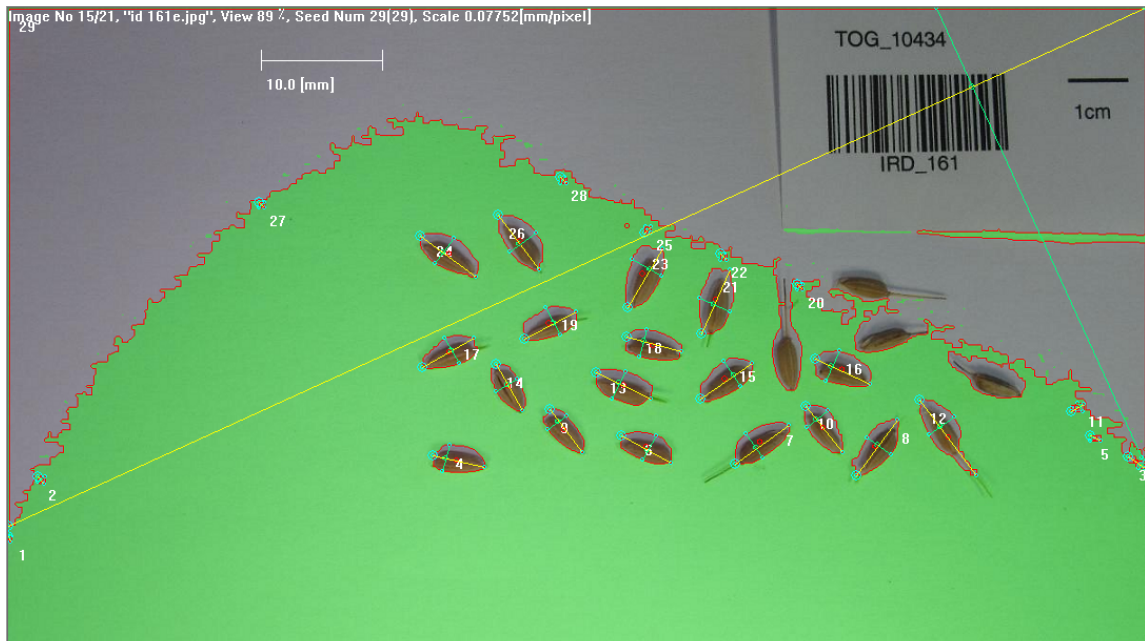


Uniformly spread grains

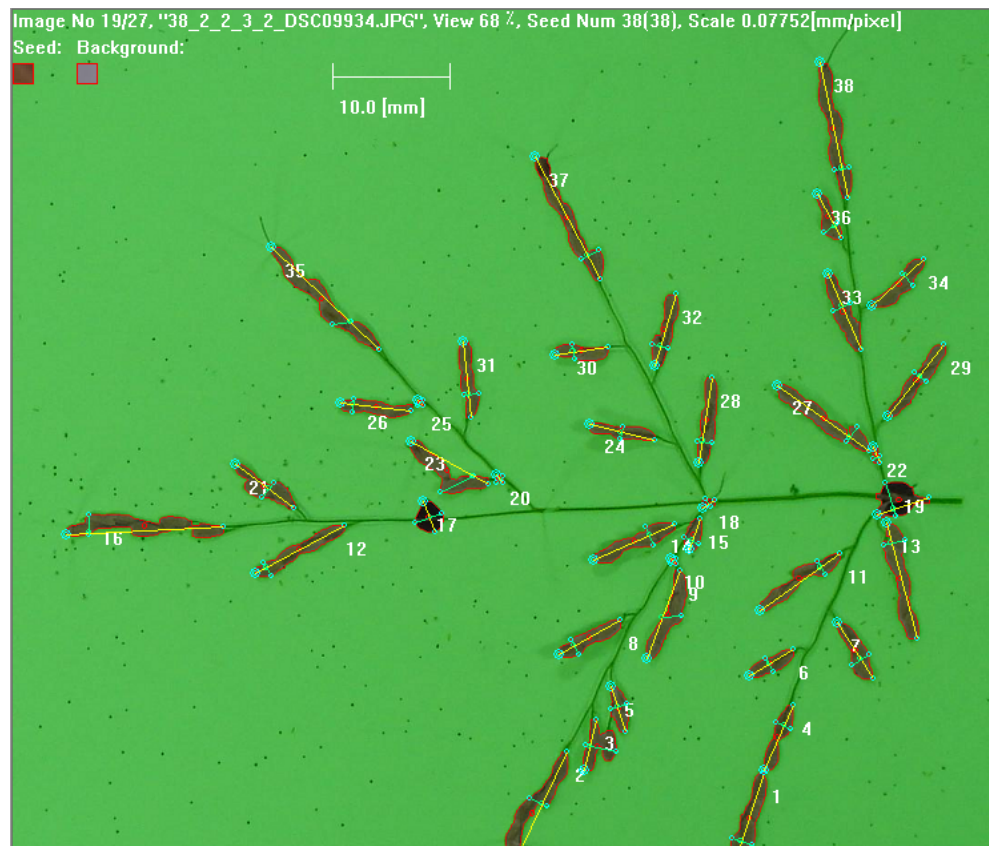


On-branch grains

3- Smartgrain Application Problems.



Smartgrain performs quite good in case of colored images when the user has to specify the background and object colors manually. In the case of grayscale mode, it is very sensitive to small illumination variations, as it seems to be using a global thresholding approach.



In case of on-branch grains, it is not designed to detect them and/or estimate their number by detecting a reference grain (grain size) and compare the other objects with respect to this reference.