



HACETTEPE UNIVERSITY

GEOMATICS ENGINEERING

DIGITAL IMAGE PROCESSING – GMT342

Name: Berk

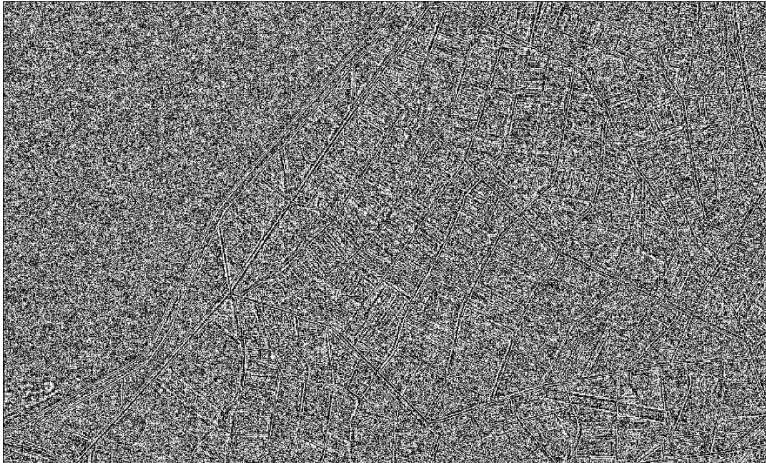
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Part 1: Convolution Kernel Method

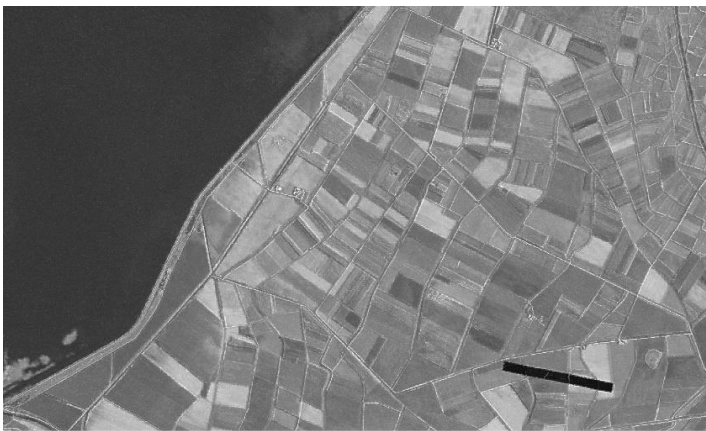
Step 1: Filtered with Convolutional Kernel's Result (with imshow function):

Actually this image shouldn't look like this and its matrix table (table name "farkli" in matlab function) looks correct but showing image is not correct so when i try to compute something with "farkli" matrix results are correct but when i try to imshow it by itself it looks wrong and there is only 0 and 255 values in visualized image. I tried to fix it but didn't solve it. Anyway i think my last result is correct because matrix still not corrupted and work well.



Step 2: Adding Result to Original Image:

Without weight, that means $k=1$

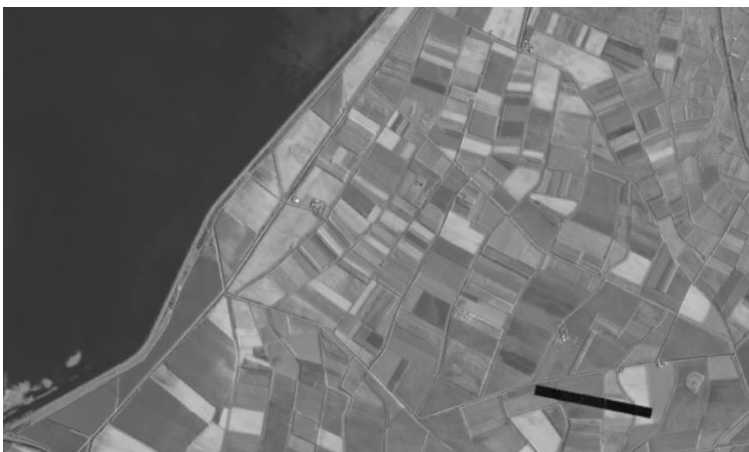


with boost $k=20$

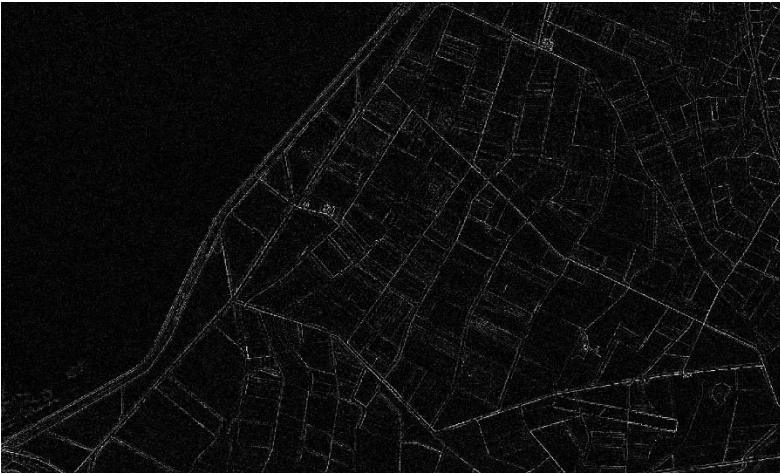


Part 2: Substraction Method

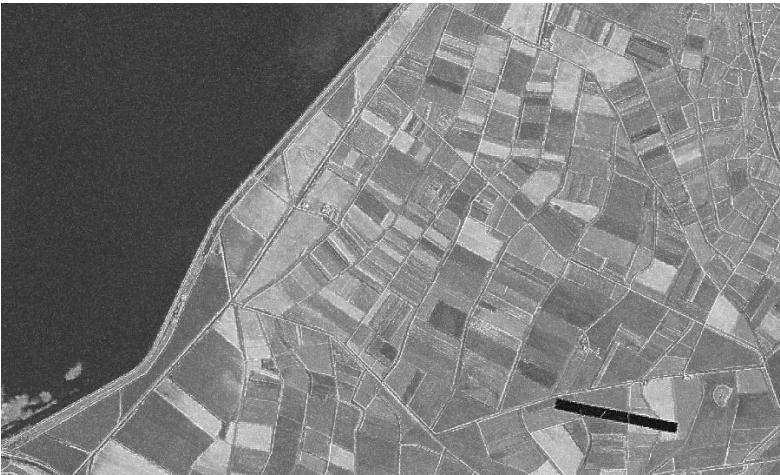
Step 1: Blurring with 3x3 Mean Filter's Result:



Step 2: Original Band1 Image – Blurred Image boosted with k (k=20):



Step 3: Original band 1 + Boosted Image:



In Conclusion:

The both result images (subtraction method and convolution kernel method) make edges more sharp and brighter with some salts in image. In subtraction method we take mean and getting the difference from original image that because when we apply mean filter the big changes in edges and getting the difference from original image shows only edges but this difference values so low and hardly see so boosting it with k variable make it more brighter except dark areas because still $0 \cdot k = 0$ and when we adding this result to original image edges looks more brighter and sharp but for serious result this function need boost. In the other hand convolution filtered result has more weight so it can be seen clearly without boost. In my observes convolution kernel method has apporximately x9 more weight than subtraction method so when k=9 in subtraction method and k=1 in convolution kernel method pixel values almost same with just a little bit differences.