

Using FCMC, FVS, and PCA Techniques for Feature Extraction of Multispectral Images

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LETTERS

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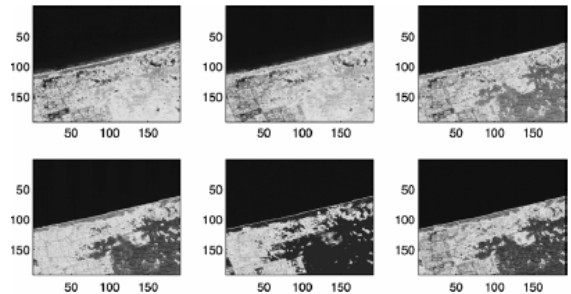
New method (2/2)

- Step 3) Perform the PCA in the new feature space.
- Step 4) Evaluate the PC images by the objective values of the FCMC. As done in this letter, the parameters b , J_s , and σ^2 can be chosen by adjusting continually for several times.

Outline

- Abstract
- New method
- Original, single PCA, new method multispectral images
- Classification accuracy
- Time compared
- Conclusioun
- My Conclusioun

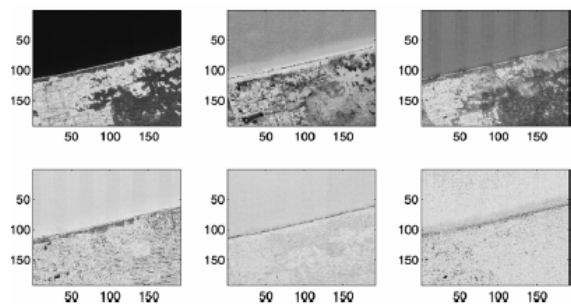
Six original multispectral images



Abstract

- combination of the FCMC, FVS and PCA is its method.
- very large number of samples need to be processed.
- compared to the single PCA and kernel PCA.

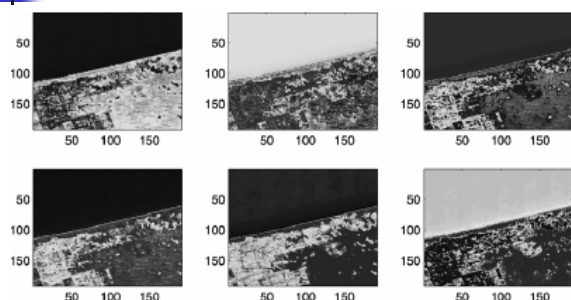
PC images extracted by the single PCA



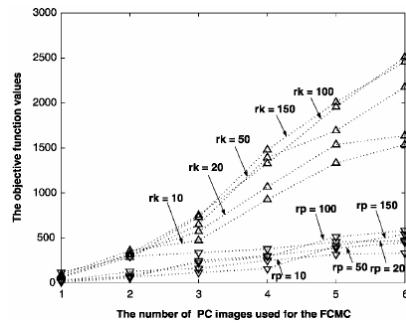
New method (1/2)

- Step 1) Given the number of clustering centers c and the parameter b , select r input samples after clustering.
- Step 2) Given the number of feature vectors L and initiated global fitness J_s , choose the radial basis function as kernel function; then, search for the FVs by the FVS. Furthermore, project original data onto the subspace F_s .

Six PC images obtained by our method, where the number of the training samples is 150.



Classification accuracy(1/2)



My Conclusiuon

- I am so sorry. I get full of trouble to everybody.
- This web page is so famous. I am so surprised.

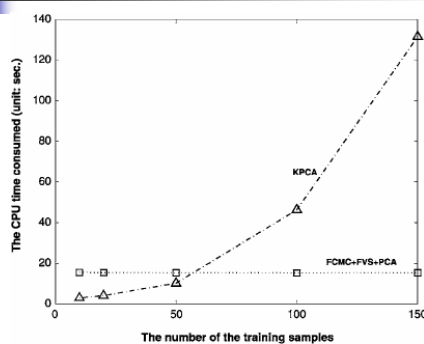
Classification accuracy(2/2)

- rp:

rp	b	J_s	L	σ^2
10,20,50,100,150	2	0.95	9	1335

- rk: (Note that the best experimental result can be reached when $\sigma^2=2238.7$)

Time compared



Conclusiuon

- Improve the classification accuracy greatly
- Significantly reduce the computational time compared to the single KPCA when a large number of samples are considered.