

Accepted Manuscript

Dictionary Learning with Structured Noise

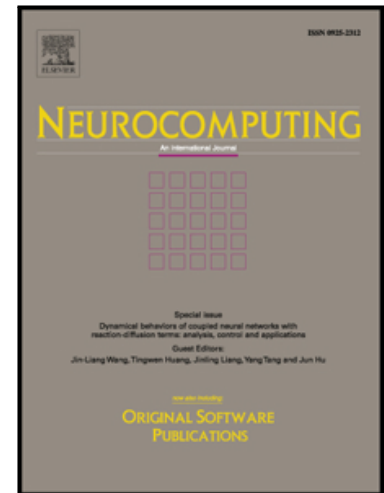
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PII: S0925-2312(17)31343-7
DOI: [10.1016/j.neucom.2017.07.041](https://doi.org/10.1016/j.neucom.2017.07.041)
Reference: NEUCOM 18733

To appear in: *Neurocomputing*

Received date: 2 April 2016
Revised date: 20 February 2017
Accepted date: 31 July 2017

Please cite this article as: Pan Zhou, Cong Fang, Zhouchen Lin, Chao Zhang, Edward Y. Chang, Dictionary Learning with Structured Noise, *Neurocomputing* (2017), doi: [10.1016/j.neucom.2017.07.041](https://doi.org/10.1016/j.neucom.2017.07.041)



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Highlights

- We propose a novel low rank based dictionary learning method to handle noisy data. Unlike sparse representation that encodes each signal dependently, the low rank technique can capture the global inherent structure of data and improve the quality of learnt dictionary.
- Instead of solely using Gaussian or Laplacian distribution to characterize the real distribution of noise, we learn an adaptive dictionary for structured noise and adopt Gaussian distribution to fit the remaining Gaussian noise.
- We also prove that our proposed optimization method can converge to a critical point and the convergence rate is at least sublinear.

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