



CAN WE ALWAYS TRUST ENTROPY MINIMA IN THE ICA CONTEXT ? (TueAmOR11)

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★ Abstract :

Marginal entropy can be used as cost function for blind source separation (BSS). Recently, some authors have experimentally shown that such information-theoretic cost function may have spurious minima in specific situations. Hence, one could face spurious solutions of the BSS problem even if the mixture model is known, exactly as when using the maximum-likelihood criterion. Intuitive justifications of the spurious minima have been proposed, when the sources have multimodal densities. This paper aims to give mathematical arguments, complementary to existing simulation results, to explain the existence of such minima. This is done by first deriving a specific entropy estimator. Then, this estimator, although reliable only for multimodal sources with small-overlapping Gaussian modes, allows one to show that spurious minima may exist when dealing with such sources.

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