



## Raising the noise to improve performance in optimal processing

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Résumé en anglais

We formulate, in general terms, the classical theory of optimal detection and optimal estimation of signal in noise. In this framework, we exhibit specific examples of optimal detectors and optimal estimators endowed with a performance which can be improved by injecting more noise. From this proof of feasibility by examples, we suggest a general mechanism by which noise improvement of optimal processing, although seemingly paradoxical, may indeed occur. Beyond specific examples, this leads us to the formulation of open problems concerning the general characterization, including the conditions of formal feasibility and of practical realizability, of such situations of optimal processing improved by noise.

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### Liens

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