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Bayesian or Laplacien inference, entropy and information theory and information geometry in data and signal processing. (English) [Zbl 1483.62011](#)

Mohammad-Djafari, Ali (ed.) et al., Bayesian inference and maximum entropy methods in science and engineering (MaxEnt 2014), Clos Lucé, Amboise, France, September 21–26, 2014. Melville, NY: American Institute of Physics (AIP). AIP Conf. Proc. 1641, 43-58 (2015).

Summary: The main object of this tutorial article is first to review the main inference tools using Bayesian approach, Entropy, Information theory and their corresponding geometries. This review is focused mainly on the ways these tools have been used in data, signal and image processing. After a short introduction of the different quantities related to the Bayes rule, the entropy and the Maximum Entropy Principle (MEP), relative entropy and the Kullback-Leibler divergence, Fisher information, we will study their use in different fields of data and signal processing such as: entropy in source separation, Fisher information in model order selection, different Maximum Entropy based methods in time series spectral estimation and finally, general linear inverse problems.

For the entire collection see [\[Zbl 1470.00021\]](#).

MSC:

- [62B11](#) Information geometry (statistical aspects)
- [62F15](#) Bayesian inference
- [94A17](#) Measures of information, entropy

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