

A Bayesian Model with Improved Prior in Extreme Value Problems

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Abstract : In Extreme Value Theory, inference estimation for the parameters of the distribution is made employing a small part of the observation values. When block maxima values are taken, many data are discarded. We developed a new Bayesian inference model to seize all the information provided by the data, introducing informative priors and using the relations between baseline and limit parameters. Firstly, we studied the accuracy of the new model for three baseline distributions that lead to a Gumbel extreme distribution: Exponential, Normal and Gumbel. Secondly, we considered mixtures of Normal variables, to simulate practical situations when data do not adjust to pure distributions, because of perturbations (noise).

Keywords : bayesian inference, extreme value theory, Gumbel distribution, highly informative prior

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