Ciclo de Seminários do PPGEST

Universidade de Brasília

Departamento de Estatística

UnB

O Programa de Pós-Graduação em Estatística convida para:

WEBINAR

On the Robustness to Outliers of the Student-t Process

Prof. José Ailton Alencar Andrade (UFC)

Quinta-feira, 01/09/2022 às 14:30hs de Brasília

O seminário é público e poderá ser assistido pelo Link
https://teams.microsoft.com/l/meetup-join/19.

Resumo

The theory of Bayesian robustness modeling uses heavy-tailed distributions to resolve conflicts of information by automatically rejecting the outlying information in favor of the other sources of information. In particular, the Student's t process is a natural alternative to the Gaussian process when the data might carry atypical information. Several works attest to the robustness of the Student t process, however, the studies are mostly guided by intuition and focused mostly on the computational aspects rather than the mathematical properties of the involved distributions. This work uses the theory of regular variation to address the robustness of the Student t process in the context of non-linear regression, that is, the behavior of the posterior distribution in the presence of outliers in the inputs, in the outputs, or in both sources of information. In all these cases, under certain conditions, it is shown that the posterior distribution tends to a quantity that does not depend on the atypical information, then, for every case, the limiting posterior distribution as the outliers tend to infinity is provided. The impact of outliers on the predictive posterior distribution is also addressed. The theory is illustrated with a few simulated examples.