Probability Seminar

Title: Maximum Likelihood Estimation for the Generalized Pareto Distribution

Speaker: Bruno Daniel Mazeto
Affiliation: Universidade de Brasília

Date: 5/25/2018
Time: 2:15pm
Place: Room MAT-A(Miniauditorium)

Abstract: The generalized Pareto distribution (GPD) has been widely used to model exceedances over threshold. It has applications in several fields, including reliability studies and analysis of environmental.

The estimation of the GPD parameters is not usually an easy problem. The main issue with the maximum likelihood estimation is that for some datasets the likelihood function appears to have no local maximum.

First, we will present a brief summary of the extreme value theory and then we will show some mathematical results that provide precise arguments to explain the anomalous behavior of the likelihood function when sampling from GPD distribution. A theoretical study of the GPD submodels with compact support will be introduced.

References

[1] Castillo, J.; Serra, I. Likelihood inference for generalized Pareto distribution. **Computational Statistics and Data Analysis**. p. 116-128, 2015.

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[4] Zhang, J., Stephens, M.A., A new and efficient estimation method for the generalized Pareto distribution. **Technometrics**. 316-325, 2009.

[5] Zhang, J., Improving on estimation for the generalized Pareto distribution. **Technometrics**. 335-339, 2010.

[6] Song, J., Song, S., A quantile estimation for massive data with generalized Pareto distribution. **Computational Statistics and Data Analysis**. 143-150, 2012.