



Associação Brasileira de Estatística  
XIV EBEB - Encontro Brasileiro de Estatística Bayesiana - Rio de Janeiro



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Scige

## Apresentações em Pôster

### Instruções para apresentadores:

- O pôster devem ser afixado entre 15h20 e 16h40 do respectivo dia da apresentação e retirado ao término da sessão pôster
- As dimensões máximas de cada pôster devem ser de 90 cm de largura e 105 cm de altura
- O pôster deve estar preferencialmente em inglês

### Pôster 2 (Quarta-feira)

39. **Título:** Exact Bayesian inference for Markov switching Cox processes

**Autores:** Livia M. Dutra; Flávio B. Gonçalves; Roger W. C. Silva

**Abstract:** Statistical modelling of point patterns is an important and common problem in several applications. An important point process, and a generalisation of the Poisson process, is the Cox process, where the intensity function is itself stochastic. We focus on Cox processes in which the intensity function is driven by parametric functional forms that switch among themselves according to a continuous-time Markov chain. We call this as a Markov switching Cox processes (MSCP). We develop a Bayesian methodology to perform exact inference based on MCMC algorithms. Simulated studies are presented in order to investigate the efficiency of the methodology on the estimation of MSCP's intensity function and the parameters indexing its law.

**Keywords:** *Bayesian inference; Exact posterior distributions; Cox process; Continuous-time Markov chain;*

40. **Título:** Dynamic Forecasting of Wind Speed and Maximization of the Power Function

**Autores:** Lassance, R.F.L.; Fonseca, T.C.O.; Schmidt, A.M.

**Abstract:** The objective of this work is to present different classes of models that provide short range forecasts of wind speed, while taking the function of the generated power into account. The statistical analysis for this problem is of primary importance due to the inconstant nature of the wind and the impossibility of storing its energy to tackle

also include a fragility term to take care of the unobserved heterogeneity. The mean trajectory depends on unobserved Markov switching state variables. An analysis with simulated data is presented to evaluate the predictive power of the model. Finally, we show an application to a real dataset.

**Keywords:** *Joint hierarchical model; Longitudinal and time-to-event data; Dynamic model;*

#### 44. **Título:** Linear Skew Normal Antedependence Models for Longitudinal Data

**Autores:** Marta Lucia Corrales Bossio; Edilberto Cepeda Cuervo

**Abstract:** In recent years, the joint modeling of the mean and the covariance matrix in continuous longitudinal data with multivariate normal errors, by means of the factorization of the precision matrix through antedependence models, has been widely used by authors using Bayesian methods. These models have as advantages the possible use of computers to estimate the parameters and absence of restrictions on them. However, the assumption of multivariate error normality can be questionable in many practical situations: when there are atypical data, when the data exhibit heavy tails or when high asymmetric behavior is evident in the data. When the data have asymmetric distribution, the normal skewed distribution has shown efficiency in treating the skewness. In this work, we propose skew-normal antedependence regression models, where mean, scale, and antedependence parameters follow regression structures.

**Keywords:** *Antedependence models; longitudinal data; Bayesian method;*

#### 45. **Título:** Maximum entropy distribution on a circular region under mean value constraints

**Autores:** J.C.S. de Miranda

**Abstract:** Maximum entropy distributions are a valuable tool in simulation studies where, in some sense, besides the information we already have about a probability structure, we want to assume the least additional information about it. Using variational methods we determine the maximum entropy probability distribution with support on a circular region under mean value constraints. More precisely, we determine the probability density function,  $f_{XY}$ , of a random vector  $(X, Y)$  such that  $\mathcal{I}m(X, Y) \subset \mathcal{D}$ , where  $\mathcal{D} = \{(x, y) \in \mathbb{R}^2: x^2 + y^2 \leq 1\}$ , that maximizes the entropy functional  $\int_{\mathcal{D}} f \ln f \, d\ell$  and satisfies the mean value constraints  $\mathbb{E}X = \mu_X$  and  $\mathbb{E}Y = \mu_Y$ , where  $\mu_X$  and  $\mu_Y$  such that  $(\mu_X, \mu_Y) \in \mathcal{D}$ , are given.

**Keywords:** *Maximum Entropy Distribution; Variational Calculus; Bessel Functions;*

#### 46. **Título:** Mismeasurement Cure fraction model

**Autores:** Anna Rafaella da Silva Marinho; Rosangela Helena Loschi

**Abstract:** The medical advances in cancer treatment and the development of efficient diagnosis techniques in the recent years have contributed to the increase in the fraction of cured patients. Because of this, it is increasing the interest in developing statistical models able to more appropriately deal with lifetime data in the presence of cure fraction. It is well known that some covariates that may influence the patient lifetime can be mismeasured. In this work, a Bayesian cure rate model with mismeasured covariates is developed extending previous models. We consider a structural approach to deal with the explanatory variables with measurement error. One of the main goals is reducing the bias in the estimates of the cure rate. Differently of what has been considered in the literature, the error variance is estimated. Three different prior specifications are proposed to model this parameter behavior. A solution to identifiability problems that arose due to the presence of latent variables in the model is proposed. In all models, the posterior distributions have no closed form expressions. For this reason we used the Gibbs Sampler with Adaptive Metropolis to obtain samples of the posterior distributions. A Monte Carlo simulation study is presented and also an analysis of a melanoma clinical trial that has already been discussed in the literature.

**Keywords:** *Cure Rate; Structural Model; Mismeasured Covariates; Bayesian Inference;*

#### 47. **Título:** Model selection for log-Gaussian Cox processes using FBST

**Autores:** Patrícia Viana da Silva; Jony Arrais Pinto Júnior

**Abstract:** Log-Gaussian Cox processes is a class of models very useful to fit point patterns data. Point patterns are very common in many research areas and their principal goal is to know if there is a spatial pattern governing the