LEUVEN STATISTICS RESEARCH CENTRE (LSTAT)
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Thesis topic (before March 17, 2015)

OUR REFERENCE
YOUR REFERENCE
LEUVEN

Title :

The use of mixture distributions in a Bayesian linear mixed effects model

Name promoter: Emmanuel Lesaffre (KU Leuven)

Available for students from - Biometrics, Social, Behavioural and Educational Statistics, Business Statistics, General Statistical Methodology, All Round Statistics (indicate the profile for which this topic is suitable)

Description:

Indicate whether the working area is the **KULeuven** or a company outside KULeuven.

In this master thesis we wish to explore Bayesian methods to model finite mixture random effects distributions in a Bayesian linear mixed effects model. By assuming that the random effects are a finite mixture of normal distributions, we can account for random effects that are not normally distributed. We wish to address two problems: finding the correct number of mixture components and checking the fit of the mixture distribution. The master thesis involves fitting finite mixture linear mixed models to real longitudinal data, such as blood donor data. The proposed approaches for choosing the number of components in the random effects distribution (e.g. marginal likelihood, posterior predictive checks, DIC, etc) will be evaluating using simulation studies. The analyses will programmed in WinBUGS or JAGS, but also in combination with R.

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