Einladung zum Biometrischen Kolloquium

Wiener Biometrische Sektion
der Internationalen Biometrischen Gesellschaft
Region Österreich – Schweiz

Am 22. 5. 2017, 10-11h

MUW-CeMSIIS, Spitalgasse 23, 1090 Wien, BT 88, Informatik-Bibliothek 88.03.806

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BAYESIAN TREATMENT COMPARISON USING PARAMETRIC MIXTURE PRIORS COMPUTED FROM ELICITED HISTOGRAMS

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A Bayesian methodology is proposed for constructing a parametric prior on two treatment effect parameters, based on graphical information elicited from a group of expert physicians. The motivating application is a 70-patient randomized trial to compare two treatments for idiopathic nephrotic syndrome in children. The methodology relies on histograms of the treatment parameters constructed manually by each physician, applying the method of Johnson, et al. (2010). For each physician, a marginal prior for each treatment parameter characterized by location and precision hyper-parameters is fit to the elicited histogram. A bivariate prior is obtained by averaging the marginals over a latent physician effect distribution. An overall prior is constructed as a mixture of the individual physicians' priors. A simulation study evaluating several versions of the methodology is presented. A framework is given for performing a sensitivity analysis of posterior inferences to prior location and precision, and illustrated based on the idiopathic nephrotic syndrome trial.