APPLIED BAYESIAN DATA ANALYSIS USING STAN

OCTOBER 24 – 25, 2014

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Michael Betancourt, Department of Statistical Sciences, University College London

Location: Swiss Ornithological Institute, Sempach, Switzerland   vogelwarte.ch

Workshop leaders
Daniel Lee and Michael Betancourt are members of the core development team of STAN. Both are excellent software engineers. They work with Prof. Andrew Gelman on applied Bayesian statistics, modelling and software development.

Daniel is doing research on Monte Carlo Markov chains (MCMC) and Bayesian analyses (http://linkd.in/12xLZYK). Michael studies the mathematical foundations of Bayesian methods in order to motivate efficient practical techniques (http://www.homepages.ucl.ac.uk/~ucakmjb/).

Outline
Stan is an open-source, general Bayesian inference tool with interfaces in R, Python, Matlab, and the command line. Stan was developed to address the speed and scalability issues of existing Bayesian inference tools, BUGS and JAGS, while maintaining the ability to write models easily through a statistical language. The default algorithm is an auto-tuned variant of Hamiltonian Monte Carlo, which is a more efficient MCMC algorithm for general problems than Gibbs sampling or random-walk Metropolis Hastings. This exciting new tool is now open to everybody and has the potential to be very useful in the daily life of a data analyst that use comparably complex models in a Bayesian framework.

The course will start with a short introduction to Bayesian inference and how Stan works. However, the main goal of the course is the practical application of Stan to different models starting with ordinary linear regression and ending with more complex models such as generalized linear mixed and hierarchical models.

Prerequisites
Sound experience in Bayesian statistics is not assumed but people who have some experience in Bayesian statistics will get more from the course. If there is interest, an introduction to basics in Bayesian statistics will be organized the day before the STAN course.

Workshop participants will be assumed to bring their own laptop with preinstalled STAN, R, and the R-package RSTAN. See http://mc-stan.org/ for an instruction how to install it.

Location

The course will be held at the Swiss Ornithological Institute in Sempach (http://vogelwarte.ch/home-en.html). Accommodation is not included in the course fee, but few basic rooms are available at the Swiss Ornithological Institute and there are several Hotels nearby.

Date and hour

Friday, 24 October and Saturday, 25 October 2014. The course starts at 9.00 and ends at 17.00 on both days.

Course fee
- CHF 800.-- for members of the Swiss Statistical Society, other applicants CHF 1'000.--.
- Reduced course fee CHF 700.-- for students. Please send a copy of the certification. A limited number of course places is reserved for students.

The course fee includes printed documentation for personal use only, meals and accommodation are not included in the course fee.

The number of participants is limited to 20 with a minimum of 12.

Registration deadline

October 5, 2014. For registrations after this date, CHF 150.-- will be added.

Please, tell us upon registration whether you would be interested in an introduction to basics in Bayesian statistics on Thursday 23 October.

Registration and further information

> Swiss Statistical Society
> Erna Seematter
> Postfach 91
> CH-3922 Stalden
>
> erna.seematter@stat.ch

The Swiss Statistical Society (SSS) reserves the right to cancel a course up to 4 days prior to the course due to insufficient enrollment. The SSS is not liable for any participants' expenses due to the cancellation of any booked courses. Payment of the course registration fee is required prior to the start of the course. Cancellations received between 4 days prior to the course will be refunded 50% of the course fee. The SSS regrets that no refunds are allowed for cancellations received within 4 days of the course start date.