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A MESSAGE FROM THE PRESIDENT

- Fabrizio Ruggeri -
ISBA President, 2012
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In dealing with people in Italian companies, I found that a very simple statistical model is often perceived (and paid ...) better than a very sophisticated one. My industrial counterparts, in general brilliant in their fields, were quite scared when seeing stochastic processes but they felt very comfortable when presented with a control chart or, even, a simple Gaussian model with normal-inverse gamma prior. I think we have the duty of promoting the use of sound statistical methods not only in very advanced fields (e.g. genomics), where we could have the "pleasure" of producing sophisticated models and contributing to important findings, but also in less "noble" fields, like industrial processes and businesses, where our work, even with simple models, could have an impact on our daily life, like having more reliable products, savings in production, major customer satisfaction. And of course, as you will see later, the contributions we provide go well beyond industry and business. As Bayesians, we have problems in convincing practitioners to use our methods; the most common criticism is the "usual" one: the arbitrariness introduced when considering a prior distribution. I do not need to convince you that we can tackle this problem, although elicitation in the real world with real people is more complex than in textbooks (and in some papers ...). For those reasons, I decided to stimulate your thinking by presenting a series of simple models which have been applied with success in many fields. I contacted many ISBA members (sorry, if you were not among them!) and I was expecting very few answers (people are usually overwhelmed by their work) but, at my surprise, I got more than 50 examples (and even more answers, including people who are not working on "simple models"). Some answers remembered very well known simple applications, like the use of Bayes' theorem in diagnostic testing and Bayesian models for rare events like nuclear accidents, but I had the chance of learn also about unexpected applications of Bayesian statistics, like in the recovery of the flight recorders of the 2009 Air France disaster when "Bayesian search theory" was used. I am sorry I cannot thank all the contributors here since my column is already very long (and I apologise, with both authors and readers, for shortening the contributions, with the risk of imprecision of which I am the only responsible). Since some people could not disclose classified details, I decided to remove as much as possible any reference to people and companies.

...*Continued on page* 2.

In this issue

MESSAGE FROM THE PRESIDENT, *Continued from page 1. . . .*

In contacting people, I learned that Kerrie Mengersen and Christian Robert are preparing a special issue of Statistical Science on "When did Bayes make a difference in analysing real cases?" I believe this issue will be a remarkable one and could "make a difference", especially if it will go beyond the statistical community.

I will start from my own work. Recently, we worked with an Italian company interested in monitoring progress in the construction of an oil plant. We considered performance indices (on cost and time) as data, from a lognormal model, and we took Gaussian priors with parameters obtained after interviewing company's experts and, at the end of the day, our forecasts about final cost and completion time were better than their own and now the company would like to implement our procedure into a software code. Years before, we had done even better forecasts about failures but that company (in the transportation sector) was not very excited: we had used sophisticated nonhomogeneous Poisson processes (maybe, we are not good at selling our work but this is another topic I am leaving to someone else to address).

Bayesian linear regression, incorporating experts' opinions, is currently used by another company in the same field as ours, but elsewhere in the world, in the study of gas to liquid reactors. Long time ago, Bayesian methods were used in India in the discovering process of oil well for another company.

Reliability is a field in which Bayesian methods are very popular, proving to be the only possible approach when, e.g., assessing the survivability of untested systems. As an example, a binomial model on success/failure of system tests was considered in estimating reliability of a new modification of a system for a major U.S. defense contractor. Data were taken from previous and current version of system, whereas experts' opinions on the possible effectiveness of the repairs/modifications to the system were used to elicit a beta distribution on the parameters of the binomial. As a result, estimation of reliability of the new system was improved (through reduced uncertainty).

At least a couple of problems are currently addressed in a French energy utility company. The first one involves the forecast of the next failure time of reliable components in production plants. Maintenance is efficient but expensive, so an optimal policy is needed. Data (few actual failures and many censoring times) are considered as i.i.d., with an exponential distribution, since no aging is assumed in practice because of maintenance efficiency. The experts are able to express opinions on lifetime median and extreme prior predictive percentiles leading to a conjugate gamma prior. The model allows for a better maintenance policy and an R code is currently used by the company. An R package has been developed also for the second problem: forecast of the relationship between a river water level, observed with some error, and the associated discharge. The model must be computationally fast and simple to explain to engineers, since its output is needed as an input distribution for elaborated computer codes used to predict downstream water height and check if dike levels guarantee protection against floods associated to small return periods with high probability. Data are pairs of observed water level and discharge measured each year, which cannot be considered homogeneous from year to year because of the modifications of the river geometry; they are modelled with a Gaussian or Student copula with log-normal margins. Conjugate priors on margins, with uniform prior on copula parameters, are considered, using experts' opinions on measurement errors and on ranges of most likely values for flood levels associated to small return periods, perceived as credibility intervals. As a result, posterior credibility bands for water discharge are obtained, allowing for test of several combinations of inputs using the computer codes and sensitivity studies on the predicted downstream water level. Flooding is also the problem currently addressed elsewhere, in cooperation with a government institution, to construct and update each year intensity-duration-frequency curves for planning, designing and operating water resources. A Gumbel distribution is used to model yearly maximum rainfall, whereas non-informative prior is chosen for the location parameter and an inverse gamma for the scale parameter. As a result, the experts determine which measurement points are similar.

A Bayesian approach revealed useful when performing design of experiments in a consul-

ting project for an Indian manufacturing company interested in tailored water pumps, where the buyer would specify some features, like pressure and water level.

Business is another area where simple Bayesian methods can be effective. A U.S. based retailer, specialised in electronics, was interested in measuring the effectiveness of its advertising campaigns which required customers to contact a call centre, mentioning the ad they were calling about. Data were the number of calls received, in unequal time intervals, for specific advertisements and advertising specific covariate data, including costs and advertising types (radio, newspaper, etc.). A modulated nonhomogeneous Poisson process was considered, along with a random effects extension. Gamma priors were taken on baseline intensity coefficients whereas normal priors were used for covariate coefficients. As a result, the authors were able to provide better forecasts of call arrival volumes and shorter prediction intervals with respect to classical approaches. E-commerce is getting more and more important and retailers are interested in designing the most effective web pages, in terms of layout and content. A leading .com company developed a method to measure such efficacy using a Bayesian approach based on multi-armed bandit, i.e. an experiment with the goal of accumulating rewards from a payoff distribution with unknown parameters that are to be learned sequentially.

Bayesian networks are very popular in business and industry. I was involved years ago in a European project assessing causes of maritime accidents, whereas a major software producer used them to build an expert system to interact with users to fix problems like "can't print", considering multinomial priors at each node of the network. Researchers in Australia used them in a variety of industry problems, like effects of management activities and interventions on algal diffusion, development of systems approaches to biosecurity in international trade, airports management, sustainability of dairy Industry based on various perspectives (environmental, economic, social), and impact of rail delays on business and the community.

My request triggered the idea of considering the LIBOR (The London Inter-Bank Offered Rate), based on 18 interest rate estimates submitted daily at 11 a.m., and obtained as a trimmed mean, averaging over the 10 estimates left after removing the top 4 and the bottom 4. Submitted numbers are not always honest, with a tendency to emphasise lower values. The issue could be solved from a Bayesian viewpoint either through a two-sided bet for eliciting one's true probabilities or considering a thick tailed prior, like the Student's t, or the Cauchy, and basing the LIBOR as the posterior mean of all the 18 submissions.

Other examples came from cooperation with governments, especially at local level. An Italian one was interested in estimating the yearly security rate for villages in its territory to rank them accordingly. Such rate accounts for different types of crime, bearing different penalties. The rank should be conclusive about the evidence of whether or not a territory should be considered more insecure than another. Data (number of complaints in villages) were modelled with a Poisson distribution with a rate on which no expert opinion was available so that a Jeffreys/reference prior was used on it. The local government then used the rate's posterior mean to distribute financial resources against the crime.

In a process of participatory democracy, citizens of a Spanish city were involved in the assignment of part of the township budget to four alternatives (mostly on sidewalks' use) proposed either by organised groups or city counsellors. Analytic Hierarchy Process (due to Saaty) was used to get matrices with pairwise comparisons of judgements provided by 12 experts (by the way, we used AHP long time ago to get 26 experts' opinions on which city pipes, characterised by different conditions, a gas escape was more likely, to choose gamma priors for the parameter of a Poisson process, and assess which cast iron pipes were to be replaced sooner). The AHP provided weights reflecting the importance of each alternative for each expert, when considering different criteria, e.g. economical, social and environmental impact of the decisions. A hierarchical model was used to describe the elicitation process for each decision maker and each criterion, with Gaussian distributions, with one of the variances denoting the flexibility of the expert in the negotiation process. A very diffuse normal-gamma prior was chosen. Finally, it was possible to obtain ranking of alternatives for each expert and, more important, determination of the most influential criterion and a unique decision about

budget allocation through the negotiation process.

In a political science context, a basic normal-normal conjugate model was used to forecast the results, state-by-state, of a U.S. presidential election, combining past election results with current polling data. The model predicted the victory of the candidate who actually won, with a good forecast at state level.

Two models were proposed to analyse trends in unemployment in the Czech Republic, with respect to time, seasonal component, regional and demographic structure. Available data were numbers of unemployed people over 15 years, numbers of newly unemployed, their structure along gender, education, age, and region. The researchers used a Poisson regression model for unemployment increments, on monthly basis, and linear time series, with dynamic development of parameters, for the number of unemployed people. The priors considered were dynamic (autoregressive) gamma distribution, independent normal or gamma distributions, along with simple Gauss-Markov random field for the regional component. As a result, it was possible to identify trends and their changes especially in the late 90's, heterogeneity of the seasonal component, strong relation among districts in a region, and weak relation across region borders.

The Mexican regulatory authority for insurance and surety industry (CNSF) uses Bayesian methods to produce mortality tables which should ensure adequate safety loadings of insurance companies. On one side, the CNSF tables are designed to overestimate the probabilities of death and companies must keep a conservative amount of money as a reserve to pay for the claims; on the other side, the CNSF produces mortality tables which underestimate the probabilities of death to be used for the retirement plans. Earlier, the tables were calculated using actuarial, mostly deterministic, techniques and the overestimation was defined basically as a percentage of the original probability. Using raw mortality rates from several millions of policies, a linear regression on age after a logistic transformation of the rates is considered, with a very diffuse (given the relatively large amount of data) normal-gamma prior. The tables are produced from the joint predictive distribution of the rates of mortality for any given set of ages. Moreover, predictive distribution can be computed for the total number of deaths (in one year) within any specified group of insured persons.

Bayesian methods are used in analysing data from laboratory studies, as well. With my co-authors, I considered measurements on molecular adhesion obtained using an atomic force microscopy. Data were given by noisy signal which were denoised using a discrete wavelet transform. Wavelets coefficients were supposed to be Gaussian distributed with plugged-in estimated variance; their mean was given a zero-mean Gaussian prior with an improper prior on its variance. The largest posterior mode was taken as estimate of the coefficient and used, in time domain, to get a denoised signal.

A French metrology institute decided to use expert knowledge on measurement bias for a more reliable statistical analysis of interlaboratory studies. Researchers collected survey data filled by laboratories and measurement data, whereas experts were asked to select survey variables and sort, in ascending order, the modalities of categorical variables along the quality of the practice. They combined a structural equation model for survey data and a random effect model for measurement data via latent variables summarising survey variables, viewed as components of bias. They took conjugate priors: normal-inverse Gamma for variance parameters and normal-inverse Wishart for the covariance matrix of latent variables in an expanded parameter space. Finally, they got a better understanding of the measurement process (e.g. correlations) to help reduce individual measurement bias based on interlaboratory studies, more reliable indicators (updated measurement bias based on a robustified consensus value) to monitor the proficiency of laboratories.

A Portuguese laboratory was interested in detecting inconsistencies between the methodology implemented for net peak area and related uncertainty determination in gamma spectrometry and usual statistical modelling for the counting process on spectral regions of a radioactive source. The number of total counts in each peak region and the adjacent continuum counts was modelled with independent Poisson distributions on the two types of data counts and also more comprehensive Gaussian distributions (due to their large magnitude). The priors were indepen-

dent Jeffreys distributions, due to absence of experts' prior beliefs. Based on the posterior distribution of appropriate parametric functions and the posterior predictive distribution of variables of interest, such as net peak area, the major finding was that the Poisson model did not appear to be a good assumption for the counting process at some (but not all) gamma-ray energies, and so its generalised use might lead to incorrect estimation of the measurement uncertainties. This was a sign that there might be interferences of variable nature on the determination of the quantities of interest.

The use of Bayesian methods became a standard in crystallography in the late 70s when they easily solved, through a proper choice of a prior distribution, the problem of negative measurements of small diffraction intensities in X-ray crystallography, which are known to be non-negative. Earlier non-Bayesian methods used to set negative measurements to zero, inducing positive bias in the resulting molecular electron density.

In a German laboratory interested in addressing current astrophysical problems, e.g., in the fields of stellar evolution, evolution of galaxies and large-scale structure of the universe astronomical images are analysed aiming at the detection of sources characterised by a large variety of surface brightness and morphologies. Astronomical data are costly and therefore limited, corrupted by noise due to background fluctuations, affected by selection effects due to e.g. instrumentation, calibration, sampling design. The interpretation of observational data implies the solution of an inverse problem, which is ill-posed since the solution is not unique or it is not stable under perturbation of data. Imaging data from observations of high-energy astrophysics in the X-ray spectral regime were previously studied with sliding window and wavelet techniques, which are known to induce large systematic errors. A two component mixture model was proposed to describe the co-existence of background and sources. Two priors (exponential and inverse Gamma) were considered for the source signal. A background-source separation algorithm was created to obtain the optimal solution of the ill-posed inverse problem.

A US laboratory was interested in fusion of atmospheric CO2 data from different remote sensing instruments, to estimate lower-atmospheric CO2 concentrations over the globe. A spatio-temporal model of the true atmospheric column averages was considered for every location on the globe. Data from different instruments shared the same prior, given by a spatio-temporal random effects model, with data-driven hyper-parameters (obtained by EM estimation). A sequence of maps of the posterior mean of lower atmospheric CO2 over North America at a 3-day time resolution was obtained, whereas the posterior variances allowed inference on CO2 fluxes (sources and sinks).

In analyzing daily rainfall data in Venezuela, simple extreme value theory method were used before 1999, forecasting that rainfalls were not a serious cause of concern until one, exceeding three times the maximum level reached so far, caused devastations and 30,000 deaths. The use of Bayesian methods could have been helpful in warning about a major plausibility of such event; in any case, the study, conducted after the catastrophe, was able to detect a two-seasonal structure of the data, not shown by earlier methods.

I got also some examples from biology (here "my" predator-prey models, based on SDE, are very far from a "simple" model). A work was about identifying when a species (here single-celled creatures in the ocean) went locally extinct. Dirt and dust settle on the floor along with dead creatures for million of years, creating layers of rock which eventually rise from the sea to a place where palaeontologists can dig into the layers and detect the creatures. Data are given by existence or not of the creatures at different levels of the layers (with meters as a proxy for time). Lack of signs about existence does not mean extinction of the creatures. The Bernoulli model had two parameters: extinction time and probability of observing a creature if extant. An exponential prior was taken for the former, and a beta prior was chosen for the latter. Posterior mean on local extinction time was much better than the usually biased MLE.

In an example in evolutionary biology, the use of a quite simple Bayesian hierarchical model, replacing multiple t-tests followed by a 2x2 contingency table test (on the top of the yes and no of the t-tests), led to more accurate results and stronger validation of an alternative biological theory.

Presence of three parasites in birds in a Brazilian area was modelled with a multinomial distribution counting the number of each possible combination (due to absence/presence) of parasites in a population; a Dirichlet conjugate prior was considered. The research led to findings on the incidence of each parasite.

Bayesian methods in clinical trials are getting more and more common; here are few cases of "simple models". In a US cancer centre a drug was tested in patients with uterine carcinoma. Historical control data were used along with data from the current trial, affected by very slow patients' recruitment which made a standard randomised trial impossible. A Weibull regression was performed on survivals, with expert's opinion provided by past studies. As a result, the trial could be carried within a reasonable time frame.

A Data Safety and Monitoring Committee, conducting an interim analysis of a clinical trial comparing two methods of access to dialysis, was faced with the need to conduct a set of futility analyses to see if additional clinics or patients were needed for the trial to have sufficient (frequentist) power at the planned termination point. Data were given by time to failure of dialysis access in the ongoing trial and information on potential, future enrolees in the participating clinics. A Cox model with stochastic future accrual and participation scenarios was considered. A non informative prior, almost flat on the log hazard ratio, was considered and the conditional distribution of study power at planned termination was obtained. Since power is here a random variable, its posterior distribution for various future accrual scenarios was produced, facilitating the committee's decision-making process and its recommendations.

A major medical device company was interested in finding an appropriate sample size for a clinical trial that could take advantage of existing historical data on a similar device, but not so much that the new trial itself would become "unethical" (because the old data were convincing on their own) or that frequentist Type I error would explode. Data were historical data on numbers of device implantees who were free from major complications at one month, and the number implanted. Data from the trial were, of course, not yet available, but of a similar nature (independent binary responses). Experts were asked to judge the commensurability of the historical data with the data to be collected. A binomial model with beta prior was considered, resulting in a reduced sample size and a quicker time to completion of the trial, at the expense of a small increase in Type I error. The same company was interested in showing that their device had a 5-year problem-free rate of at least 95%, and they had been enrolling patients in a follow-up study for 2 years. They wanted to know if they had got enough people in the study to make adequate forecasts over the following 3 years. A Weibull survival model with conjugate Inverse Gamma prior was considered and Bayesian predictive distributions were found to describe what was likely to happen at the fifth year.

Two researchers were involved in two different works, with the same major pharmaceutical company, on two different guidelines of the International Conference of Harmonization (ICH). The first research stemmed from the ICH E14 guidelines, which mandate performing a thorough QT/QTc (well known measures in heart's electrical cycle) study on any non-antiarrhythmic drug, to assess its potential effect on cardiac repolarisation, as detected by QT prolongation, before it can be approved and marketed. The problem is to determine whether the drug has a threshold pharmacological effect on cardiac repolarisation. Studies, typically performed with healthy volunteers, aim to determine whether or not the effect of a drug on the QTc interval in target patient populations should be studied intensively during later stages of drug development. The standard approach to investigating a drug for its potential for QT prolongation is to construct confidence intervals (CI) for the difference in mean QTc between drug and placebo at each time point, and to conclude non-inferiority if the upper limits for all these CIs are less than a pre-specified constant. The statistical problem can be formulated as the estimation of the probability that the maximum of mean difference would not exceed such constant, given a sample of multivariate measurements from two populations. In a Bayesian framework the true largest time-matched mean difference can be considered as a random variable and the probability of interest can be easily obtained from its posterior distribution.

The other research focused on the ICH Q8

guidance document for pharmaceutical product development which is interested in the design space, like the multidimensional combination and interaction of input variables (e.g., material attributes) and process parameters that have been demonstrated to provide assurance of quality. Quantification of such design space is critical and the research focused on its statistical modelling and inference. Data came from a multi-factor, designed experiment, with quality responses being multivariate in nature. Posterior predictive models, with different complexity, were used to quantify the probability of simultaneously meeting all of the product quality specifications, as a function of the process input variables. Depending upon the problem, non-informative or informative priors were used. The frequentist approach may not allow for a good way forward for many practical models (e.g. nonlinear hierarchical models with modest sample sizes), whereas the Bayesian solution is quite straightforward.

The use of Bayesian methods rather than frequentist ones came natural in a problem in ophthalmology on how to make clinical assessments and decide on treatment, given a couple of measurements of a patient. In particular, the researchers were interested in finding a credible interval for intraocular pressure (IOP) as well as in the probability of being above a set target IOP, from the few IOP measurements available during the course of routine clinical care of a glaucoma patient. IOP measurements during routine clinical care, available information for the population IOP and known variability of the measurements were used to calculate a "posterior" IOP distribution for the individual patient, from which it was possible to obtain credible intervals of IOP and the probability of IOP being above the set target, providing information likely more useful than intuition in the management of individual glaucoma patients.

In a study on the incidence of fibromyalgia in senior people in a Brazilian township, different states of the disease were classified into categories and a multinomial model was chosen for the number of members in a population fitting into them, whereas a conjugate Dirichlet prior was chosen.

A work on pharmacotherapy considered 30 double-blind, randomized studies including comparisons of 4 atypical neuroleptics and haloperidol, head-to-head or against placebo, with the goal of examining the efficacy and the degree of adverse effects connected with such drugs. With a binomial model, based on the number of patients experiencing effect and adverse effects, and uniform priors, it was possible to get improved information on the performance of neuroleptic drugs.

Correlation of effect magnitudes across experimental conditions in neurophysiology was addressed in another research, with the goal of correcting for attenuation the Pearson correlation in the presence of measurement errors, since the classical approach, via Spearman's correction, is flawed. Data came from two effect indices associated with 54 neuronal recordings in the frontal cortex of a macaque monkey and a bivariate normal hierarchical model was used. A diffuse prior on the two-dimensional mean vector was chosen, as well as an inverse-Wishart prior on the covariance matrix (using a default method). As a result, an improved estimate of underlying correlation was obtained, with substantially reduced mean-squared error and more accurate coverage probability of 95% intervals.

Infectious diseases were considered in two research I was told. The first used Bayesian state space models in their surveillance. The disease spread was described using a relatively simple model, composed of an infectious disease model embedded in a state space framework, and the disease evolution parameters were estimated using the sequential Bayes approach. While there are very elaborate models for disease spread that one can use - e.g., models with age and other population structure, vaccination, waning immunity as well as cross-immunity, seasonal and weather effects - large non-linear dynamical models are usually difficult to fit given the standard quality of surveillance data. The use of a Bayesian state-space approach presented a simple alternative allowing the authors to use a basic dynamical model, provided forecasts, along with the uncertainty, and evaluated possible interventions, in near real-time.

The other research involved the use of biomarkers for various infections in veterinary epidemiology (similar methods apply to humans). The biomarkers are often converted to yes/no outcomes based on a cut-off. Instead of killing animals, or performing invasive testing on hu-

mans, to determine if it is really infected or not, posterior inferences are made about diagnostic test sensitivity and specificity and prevalence of infection (based on a binomial sample of yes/no outcomes), placing informative priors on them (it is worth mentioning that other respondents stressed the importance of another work in which specificity and sensitivity were considered as random variables, and not as given and fixed). The interest was on predictive positive and negative values (probability of actually being infected given a positive outcome, and probability of being not infected given a negative outcome). The research dealt with multiple tests (dichotomous and/or continuous) with possibly multiple populations (regression structure). For many models lacking identifiability, prior distributions (always incorporating actual information) were necessary indeed and the researchers found ways to determine if the models were identifiable.

Bayesian meta-analyses are getting more popular, especially when few studies are available. We considered possible causes of failures in elderly people, like use of antiepileptic drugs, benzodiazepines use, urinary incontinence, etc. and we asked 15 medical doctors (either general practitioners or geriatricians) about odds ratios for dichotomous variable (e.g., taking or not antiepileptics). We modelled the log of the relative risks from studies with a Gaussian model, with a Gaussian or a skewed normal prior on its location parameter. One of my respondents addressed the issue whether SSRI anti-depressants could increase the risk of suicide and analysis of routine data, a case-control study and, especially, a meta-analysis of drug company studies (innovative w.r.t. use of published literature) showed that the association was detectable in children, but not in adults. All those analyses were done in WinBUGS in a fairly straightforward way.

Some works aimed to determine the performance of hospitals in different contexts. We considered a generalised mixed-effects model for binary data, and variable selection methods, to determine both factors affecting in-hospital survival probability of patients with acute myocardic infarction and hospital influence on it. Gaussian priors on regression parameters and uniform prior on precision were taken (more complex, although nowadays quite standard, models, like Dependent Dirichlet Process were considered as well). Hospitals were ranked and clustered according to their performance. Another research, cited also in UK newspapers, was commissioned to investigate care management of children receiving complex cardiac surgical services in a Bristol hospital, where higher than average mortality rates were reported. The research, aimed at comparing Bristol outcomes with other centres, had to combine (poor quality) data from different sources. The number of death for age group, centre and procedure group were given by a binomial distribution with a logistic regression on the death probability taking in account also a random centre effect for which a prior distribution was chosen, with a lognormal distribution on its variance, and uniform priors on the parameter of the lognormal and the term in the logistic regression.

Another work was interested in U.S. hospitals treating Medicare beneficiaries. The hospitals receive a standard payment for each beneficiary treated, adjusted for patient severity and hospital factors, associated with cost but beyond the hospital's control. The problem was to determine if there were individual hospitals unduly influential on adjustment estimates. Available data on average cost per case were available, as well as hospital characteristics, such as geographic wage index, teaching involvement, hospital size, nonprofit status, and urban/rural location. A Bayesian outlier accommodation model of the logarithm of average cost per case on hospital characteristics was considered, whereas proper priors, implementable in WinBUGS, were used. The research confirmed that payment adjustments were not sensitive to potentially influential hospitals, and that hospital characteristics were not associated with the probability of a hospital being an outlier.

Queueing theory was used in the analysis of the renal transplant waiting list in a Spanish region. Data were about arrivals of patients with end-stage renal failure and organs made available in the same period. Both arrivals follow Poisson processes but organs could arrive in batch of 1 or 2 (with the arrival of a second organ modelled with a Bernoulli distribution). Posterior distributions of the parameters were obtained after considering uniform or flat priors, corresponding to a vague experts' opinion.

We are used to see very complex studies in genomics but some, relatively simple, models were

brought to my attention. In a biomedical research institute microarray data were used to study gene expression patterns associated to cancer in drosophila, mice and humans. Gene expression was modelled with a gamma distribution, whereas hierarchical gamma priors were considered on the gamma shape and scale parameters, with hyperparameters set via empirical Bayes since no experts' opinion was used. As a result, it was possible to get more accurate determination of gene expression patterns and their role in stem cells and cancer. Bayesian model selection directly addressed the scientifically relevant question, i.e. which groups had the same mean expression, without the need to artificially define an overall null and alternative. Another work, not as simple as the previous, tried to identify isoforms (different variants of a gene, which often have distinct or opposing functions inside the cell) from the short fragments ("reads") which are available from the new high-throughput sequencing technologies. Estimating how abundant each of the isoforms is in collection of cells is a major challenge in biology, especially since these isoforms are often misregulated in diseases such as cancer. Since the "reads" could come from different variants of a gene, a mixture model was considered to determine which variants they were coming from, with the weights of the mixture as posterior probabilities. Taking a Bayesian approach to this enabled the authors to: (1) get a distribution over the expression level of each isoform – rather than a single number – which proved critical to filtering noisy measurements of abundances from robust ones, (2) use Bayes factors, rather than p-values, to directly assess the likelihood that a set of isoforms are differentially regulated across tissues.

A final comment on the subjectivity of what a "simple example" is: someone thought that it was something like a Gaussian model with normal-inverse gamma prior, someone else a model in which posterior quantities could be computed using WinBugs and others, used to very complex models, to problems with many parameters, but not "too many", non conjugate priors with MCMC computations not taking ages like the complex models.

P.S. The list of people who replied to my request is available at http://www.mi.imati.cnr.it/~fabrizio/ISBA-1209.html ▲

A Message from the Editor

- Manuel Mendoza -
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This issue of the Bulletin includes an extraordinary contribution of our President. In an amazing exercise of synthesis and reduction, he offers us a review of many real applications of the Bayesian methodology which only involve "simple" models. This is a enjoyable article.

I hope you will find this bulletin interesting. As always, I want to encourage all members of ISBA to contribute to the Bulletin with their suggestions, manuscripts and announcements. Please do not hesitate to contact me or any member of the Editorial Board. ▲

BAYESIAN ANALYSIS - A MESSAGE FROM THE EDITOR

UPDATE FROM BA

- Herbie Lee -
Editor-in-Chief
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The September issue of BA features a paper on prior elicitation by Isabelle Albert, Sophie Donnet, Chantal Guihenneuc-Jouyaux, Samantha Low-Choy, Kerrie Mengersen and Judith Rousseau, which provides a new model for spatial data with covariates. Additional perspective appears in discussions by Simon French and John Paul Gosling.

This issue also contains other fine articles on priors, parametric modeling, and Markov chain Monte Carlo.

I'm delighted that Marina Vannucci will be taking over as the next Editor-in-Chief of Bayesian Analysis. She comes with great experience at BA as well as at other journals. The December issue will be my last issue as we transition over. We are also in the process of transitioning to the EJMS online review system that is shared with the IMS journals, and moving our publication site to Project Euclid. You can now see the current and past issues of BA on Project Euclid at http://projecteuclid.org/ba. ▲

ISBA - SECTIONS

BIOSTATISTICS AND PHARMACEUTICAL STATISTICS SECTION

- Peter Mueller -
Secretary
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We invite all members with interests related to biostatistics to join our new ISBA Section on Biostatistics and Pharmaceutical Statistics (ISBA-Biostat&Pharma). This is an exciting time for Bayes in biostatistics and related fields with many opportunties to make substantial contributions in solving real problems. For example, innovative clinical trial design is one of the currently most exciting and high impact frontiers in Bayesian analysis. The increasingly complex nature of clinical study designs and the increasing pressures for efficient and ethical design naturally lead to Bayesian approaches. See, for example, Don Berry's ISBA Foundation lecture at http://www.bayesian.org.

The new section will serve as a home for all fellow-Bayesians who care about biostatistics and pharmaceutical statistics. There are many occasions when it is important that we can speak as a group. For example, regarding issues related to funding decisions. Many of our colleagues in the US might recall the discussions related to the organization of a biostatistics study section in the NIH grant review. Or ISBA/BioPharm could comment on important guidance documents by regulatory agencies. In many cases decision makers and colleagues will be thankful to have constructive input from a representative professional society like ISBA/BioPharm, and we could really make a difference.

We expect that the new section will play a role in organizing related workshops and sessions at larger ISBA meetings. An important aspect of biostat and pharmaceutical statistics is the presence of strong communities in academics, industry and government agencies. We hope that the new section will play an important role in connecting folks across these different communities and giving a platform to related intiatives.

The initial officers of the section are:

- Don Berry (Chair 2012-2014),
- Telba Irony (Program chair, 2012-2013),
- Peter Mueller (Secretary, 2012-2014) and
- Kathryn Chaloner (Treasurer, 2012-2013).

Moreover, we will elect a chair-elect in the upcoming ISBA election. We hope that many ISBA members will be interested in joining the section. All are welcome, even frequentists with scientific curiousity! Hopefully ISBA/BioPharm will be able quickly become the main professional society for Bayesian biostatistics and pharamaceutical statistics. ▲

INDUSTRIAL STATISTICS SECTION

- Refik Soyer -
Chair
soyer@gwu.edu

The primary purpose of the ISBA Section on Industrial Statistics (ISBA-IS) is to promote research in Bayesian methods in industrial statistics by organizing conferences, workshops, and sessions in other meetings. Other purposes of the Section include promoting use of Bayesian methods among industrial statisticians and practitioners by developing short courses and increasing ISBA membership among industrial statisticians. Planned activities for the ISBA-IS include:

GDRR 2013. The ISBA-IS is one of the organizers of the Third Symposium on Games and Decisions in Reliability and Risk (GDRR 2013) which will be held in Kinsale, County Cork, Ireland, July 8th - 10th, 2013 www.cs.tcd.ie

Sponsored sessions. ISBA-IS sponsored sessions are planned at ISBASA (International Society for Bayesian Analysis South, African chapter) June 26-28, 2013, Mathematical Methods in Reliability-MMR 2013 www.sastat.org.za which will take place in Stellenbosch, South Africa during July 1-4, 2013 and at the European Network for Business and Industrial Statistics (ENBIS) meeting in Ankara, Turkey during September 18-20, 2013. ▲

BAYESIAN COMPUTATION SECTION

- Christian P. Robert -
Initial Program Chair
xian@ceremade.dauphine.fr

Following the great and exciting gathering of Bayesian statisticians in Kyoto last June, several ISBA sections have recently been created. One of those new sections is BayesComp, focussing on Bayesian computation as detailed in the following declaration.

Over the past twenty years, Bayesian computation has been a tremendous catalyst in Bayesian ideas reaching practitioners – statisticians and non-statisticians alike. It has also providied a fantastic arena for original research in algorithmic statistics and numerical probability, not to mention other fields at the interface.

At this more mature stage of its development, at a time where ambitions of statisticians and the expectations on statistics grow, Bayesian computation must remain a major area of research and innovation. Then principled methods of statistical analysis can continue to be both readily available and customarily implemented, as we deal with data on a (much) larger scale, in higher dimensions and with more complex structure.

We invite all ISBA members with (any degree of) interest in computation for Bayesian inference to join the newly created ISBA Section on Bayesian Computation (BayesComp) – and that means both researchers involved in developing new computational methods and associated theory, and users of Bayesian statistical methods interested in implementing, sharing, disseminating, or learning best practice.

The purposes of the Section are as multifaceted as the aspects of Bayesian computation, including promoting original research into computational methods for Bayesian inference and decision making, encouraging the use of frontier computational tools among practitioners, the development of adapted software, languages, platforms, and dedicated machines, and translating and disseminating among statisticians methods developed in other disciplines.

We insist on the diversity of the Section: BayesComp is by no mean restricted to the field of Monte Carlo techniques but on the opposite aims at covering all computational aspects of Bayesian inference, from graphical rendering to data bases, from dedicated software to programming tips, from the theory of algorithms to automated computer output analysis, and much more!

To address these purposes, the Section will among other activities organise specific conferences (such as the upcoming MCMSki IV in Chamonix, France, on January 6-8 2014 which is sponsored by BayesComp, ISBA and the IMS), workshops, short courses, webinars, and sessions in other meetings like ISBA and JSM, and will develop and maintain a website of information, tools, and advice as an authoritative central resource for Bayesian computation.

Section dues are a mere $5 a year or only $75 for a Lifetime membership. (If you are using a foreign account, you should definitely opt for the Lifetime membership as the transfer costs will dwarf the $5 dues! Plus consider that this money is going to support young researchers travelling to conferences such as MCMSki IV.) As part of the Fall (Autumn) Membership Promotion, all new annual memberships will be extended until 31 December, 2013! The section will be holding elections in November, so please join today so that you may participate in choosing the first set of elected officers?and please contact us if you are interested in any of the elected positions! More details to come on the BayesComp section website.

Peter Green (Initial Section Chair), Christian Robert (Initial Program chair), Nicolas Chopin, Antonietta Mira (Secretary) and Havard Rue (Treasurer) welcome you to Year 1 BC! ▲

OBJECTIVE BAYES SECTION

- Ed George -
Chair
edgeorge@wharton.upenn.edu

As my first ISBA Bulletin communication, I would like to begin by thanking the current section officers, Luis Pericchi (Chair-elect), Dongchu Sun (Program Chair), Marilena Barbieri (Secretary) and Brunero Liseo (treasurer), as well as our current membership for all their wonderful contributions in this, the second year of our thriving O-Bayes section.

Indeed, it gives me great pleasure to officially announce two upcoming O-Bayes meetings in 2013 that are sure to dazzle. On January 14-18, 2013 will be the International Workshop on Bayesian Model Selection to be held at the Academy of Applied Statistical Science (AASS) at East China Normal University in Shanghai, China. The structure of this, the second formal ISBA meeting in China, will include research talks and discussions, research panel discussions, research working groups, tutorial lectures and poster sessions. Dongchu Sun (AASS co-director) has been leading the organizing committees for what promises to be a most memorable O-Bayes experience.

On December 15-19, 2013 will be O-Bayes 2013 to be held at Duke University, Durham, North Carolina, USA. Sponsored, in part, by the Department of Statistical Science at Duke, this will be the tenth International Workshop on Objective Bayes Methodology, one of the longest running, preeminent Bayesian meetings. Even more special, this meeting will be held in conjunction with a 250th anniversary celebration of Bayes, the first O-Bayesian! Jim Berger (past Section Chair of O-Bayes) and the organizers have been hard at work putting together what will undoubtedly be yet another unforgettable Bayesian extravaganza. Please be sure to put both of these meetings on your calendar. See http://bayesian.org/meetings/ISBA-meetings for further details.

On behalf of the OB officers, I would like to extend our warmest welcome for the all ISBA members to join us. ▲

[ECONOMICS], FINANCE AND BUSINESS SECTION

- Mike West -
Chair
mw@stat.duke.edu

The ISBA Section on Finance and Business (ISBA/FaB) was formally approved and established by the ISBA Board in June this year. The Section aims to promote, encourage and reflect the vitality of Bayesian methods in applications across the full spectrum of commercial, financial and economic areas. Formal, coherent analytic approaches are increasingly sought and adopted across these areas, responding to the evolving challenges of our increasingly data-rich world. Bayesian thinking can and should be front-and-centre across the business and economic spectra to promote improved analysis, predictions and decision making founded on the principles that define our discipline.

The new Section is beginning to plan activities for the coming year. Some current developments of interest to members and potential members are noted here. Please consider joining the Section to help us to grow and develop initiatives across the business, financial and economic areas, and to promote interface and outreach activities with research and education in Bayesian analysis.

From *FaB* to *EFaB*! We are at the point of submitting a change of name for the new Section to the ISBA Board. This responds to the interest in ensuring that the Section properly "feels" broad and reflective of the nature of Bayesian analysis in all areas of business, economics and finance. In particular, the new name will explicitly reflect the growth and vitality of Bayesian methods in economics across these fields, as well as the reality that economics is fundamental and integral to much of what we do in finance and business. Pending ISBA Board approval, the revised name will be the **ISBA Section on Economics, Finance and Business**, with **EFaB** for short. I will take the liberty of using the new acronym in this letter, although the proposal needs ratification by ISBA before it becomes official.

Elections: On behalf of EFaB members, I would like to offer appreciation to all candidates on the recently announced slate for election later this year. We have a slate representing a terrific range of talent, as well as very high levels of professional energy. I am delighted to report that all were most enthusiastic in agreeing to stand for office, and to commit their time and intellectual effort to developing the Section. However the election turns out, I am quite sure that we will all thrive under the leadership of Siddhartha Chib or Mike So (candidates for Section Chair-elect), Carlos Carvalho or Abel Rodriguez (candidates for Program Chair), and Emily Fox or Hongxia Yang (candidates for Secretary). Thanks again to all candidates.

ESOBE: An upcoming meeting that will be of particular interest to EFaB members is the 2012 *European Seminar on Bayesian Econometrics (ESOBE).* There is a major intersection of EFaB interests with those of ESOBE, and a number of our members very involved with the growing Seminar program. The annual meeting will be held in Vienna in early November, with a sparking cast. See http://esobe2012.wu.ac.at/.

Education & Outreach: As you may recall, ISBA recently established a formal continuing education initiative with Kate Calder at the helm. I have heard that the CE committee is developing webinar ideas, among other things, as well as guidelines for Section CE activities. Our Section aims to focus a good deal on initiating and running short-courses – stand-alone short-courses as well as continuing-ed courses linked to meetings, and to push hard on this as an opportunity to expand effective interfaces between the academic and industrial Bayesian worlds. So, as the CE machinery of ISBA ramps up, we are working with Kate and her group to begin to plan some such events. In parallel, we are exploring potential opportunities for partnering with a couple of other organisers of workshops and educational events. We expect to launch EFaB tutorial and student-practitioner activities, including possible webinars and on-site "master classes", in 2013. More details will be forthcoming on specific events as plans take shape.

Bayes 2013: We are developing initial plans for an ISBA/EFaB meeting coinciding with the major conference and celebration of the 250th anniversary of the formal reading of Bayes' seminal paper to the Royal Society. ISBA will mark this

event with the *Bayes 250* meeting at Duke University during the 3rd week of December 2013, and also highlight it in connection with the International Year of Statistics 2013. Coupled with Bayes 250, the Objective Bayes Section will run a conference. EFaB will have a 2 or 2.5 day meeting in parallel, and we are currently setting in place plans for this. We aim to focus on EFaB's key aims of promoting cross-over between academic and non-academic research, coupled with education and outreach. More details will be forthcoming on specific events as plans take shape. In the meantime, if you are interested in helping with the organisation, please contact us (myself and Herman van Dijk, hkvandijk@ese.eur.nl, the EFaB Program Chair), in the near future. And, mark your calendars for what will be a major Bayesian program in December 14-19, 2013.

ISBA 2014: Planning for ISBA 2014, the 12th World Meeting, in Cancun, Mexico. In early 2013 we will start planning for EFaB activities linked to the next World Meeting. Aligned with the Section aims to promote education in Bayesian methods in economics, finance and business, and to highlight academic-industry interactions and outreach to the finance and business professions, some early ideas about short-courses and tutorials, and master-classes will be explored. As that conversation kicks-off in a few months, we will seek engagement and active support from the Section members.

We invite and encourage all ISBA members to contact any of us to discuss ideas for EFaB activities of any kind (consistent with the Section aims and bylaws), and especially related to short-courses, workshops and conferences linked to other groups in any areas of business and finance, and other forms of outreach. Please visit the Section web page at the ISBA site. All ISBA members are invited and encouraged to join the Section– you can do this by logging into your ISBA membership account and simply adding the Section membership (either annual or life), or directly via the Section page. Please tell your friends and colleagues, and help us to develop the Section to promote, facilitate and celebrate Bayesian analysis in economics, finance and business.

With best regards,

Mike West ▲

JUNIOR SECTION

- Andrew Cron -
Chair
andrew.j.cron@gmail.com

The new j-ISBA Section (short for junior-ISBA) has recently been approved by the ISBA Board. The section was created to provide assistance to early career Bayesian researchers in the difficult task of getting a successful career started. The j-ISBA Section aims to:

- Promote and provide a forum for early career Bayesian researchers,
- Organize conferences, workshops, and sessions in other meetings,
- Provide social networking tools for early career Bayesian researchers in order to discuss research, exchange ideas with each other, and connect with the Bayesian community at large.

The founding officers are

Andrew Cron, (Section Chair);
andrew.j.cron@gmail.com

Francesca Ieva, (Program Chair);
francesca.ieva@mail.polimi.it

Marian Farah, (Secretary);
marian.farah@mrc-bsu.cam.ac.uk

* Perla Reyes, (Treasurer)
pereyesc@k-state.edu

We invite and encourage all ISBA members to contact any of us to discuss ideas and suggestions for activities to improve early career development and networking among new researchers. Specially, those related to workshops, conferences and other events planned for junior researchers. j-ISBA is working with the ISBA board and other ISBA sections to organize j-ISBA

events and session at future conferences and workshops. We are also working on webinars focused on topics important to junior researchers; specific announcements coming soon! j-ISBA Section membership is open for ISBA members that are current students or within 5 years of having completed their degree. We encouraged all junior Bayesian's to become a founding member today. For everyone beyond the 5 years mark, please encourage your students and junior colleagues to to join the section and help us to launch the j-ISBA section with a substantial initial membership! To become a founding member, please login and go to the ISBA membership web page ISBA Membership.

New members will have their memberships extended until December 31, 2013. Join the section and renew your ISBA dues now to save $10 on 2013 ISBA dues! For more information, please visit the section's webpage: bayesian.org. We hope that you will consider becoming part of the j-ISBA section today!

Best Regards, Founding Officers.

P.S. To keep up with job announcements, conferences, and other news be sure to subscribe to the Bayes News Forums by updating your subscriptions in the My Account settings under Forum Email Integration. (Login required) If you cannot remember your username or password you may request a login-link at bayesian.org/user. ▲

ISBA ELECTIONS

2012 Candidates for ISBA and ISBA Section Elections

- Merlise Clyde -
clyde@stat.duke.edu

The ISBA Nominating Committee chaired by Past -President Michael Jordan is pleased to announce the slate of candidates for the upcoming ISBA and ISBA section elections. To see individual candidate statements please visit the ISBA website bayesian.org. Voting will be conducted online from October 15 to November 15th and is open to current ISBA members. To be eligible to vote in section elections, please join the respective sections prior to October 15th to be included in the electoral list.

ISBA President-Elect

Sonia Petrone,
Bocconi University, Milano, Italy,
sonia.petrone@unibocconi.it

Eduardo Gutierrez-Peña,
National University of Mexico, Mexico,
eduardo@sigma.iimas.unam.mx

ISBA Executive Secretary

Steve Scott,
Google, USA,
stevescott@google.com

Manuel Mendoza,
ITAM, Mexico,
mendoza@itam.mx

ISBA Board

Paul Fearnhead,
Lancaster University, UK,
p.fearnhead@lancs.ac.uk

Matt Wand,
University of Technology Sydney, Australia,
matt.wand@uts.edu.au

Havard Rue,
NTNU, Norway,
hrue@math.ntnu.no

Jaeyong Lee,
Seoul National University, South Korea,
leejyc@gmail.com

Amy H. Herring,
The University of North Carolina
at Chapel Hill, USA,
amy_herring@unc.edu

Nicole Lazar,
University of Georgia, U.S.A.,
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Yee Whye Teh,
University of Oxford, United Kingdom,
yeewhye@gmail.com

Gary Rosner,
Johns Hopkins University, USA,
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Section on Biostatistics and Pharmacology Chair-Elect

Purushottam (Prakash) Laud,
Medical College of Wisconsin, USA,
laud@mcw.edu

Sylvia Richardson,
Medical Research Council Biostatistics Unit
and University of Cambridge,
United Kingdom,
sylvia.richardson@mrc-bsu.cam.ac.uk

Section on Bayesian Nonparametrics Chair-Elect

Peter Mueller,
UT Austin, USA,
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Antonio Lijoi,
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Section on Bayesian Nonparametrics Secretary

Surya Tokdar,
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Yee Whye Teh,
University of Oxford, United Kingdom,
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Section on Finance and Business Chair-Elect

Mike K.P. So,
The Hong Kong University of Science
and Technology,
Hong Kong, China,
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Siddhartha Chib,
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Section on Finance and Business Program Chair

Abel Rodriguez,
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Carlos M. Carvalho,
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Section on Finance and Business Secretary

Emily Fox,
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Hongxia Yang,
IBM T.J. Watson Research Center, USA,
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Section on Industrial Statistics Chair-Elect

Sanjib Basu,
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Ehsan Soofi,
University of Wisconsin-Milwaukee, USA,
esoofi@uwm.edu

Section on Objective Bayes Program Chair

Christian Robert,
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CREST, France,
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Susie Bayarri,
University of Valencia, Spain,
susie.bayarri@uv.es

Section on Objective Bayes Treasurer

James Scott,
University of Texas at Austin, USA,
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Stefano Cabras,
Carlos III University of Madrid, Spain and
University of Cagliari, Italy,
stefano.cabras@uc3m.es

As already mentioned, to see individual candidate statements please visit the ISBA website bayesian.org.

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STUDENTS' CORNER

Isadora Antoniano and Antonio Ortiz
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Hello our fellow students. We're sorry to tell you we have no Q&A for you this time. Perhaps we chose a tricky question; perhaps it wasn't interesting; we dare say the summer got in the way and we weren't thinking clearly. But really, we could blame it all on the tough times we're both having: the universally dreaded and desired final writing and submitting stage of the PhD. It has been quite an adventure for both of us to work on a research project for almost four years now. The culmination is exciting as it is exhausting. We therefore apologize and beg your understanding for the brief note we're leaving you with this time. In the next number we will hopefully be sharing our thesis abstracts with you. And don't forget you can do the same!! And not just abstracts, but any ideas and suggestions on the contents of this section.

And now, we leave you with a message from the new ISBA section meant just for us... don't forget to join!

j-ISBA

j-ISBA was born! The ISBA Board recently approved the bylaws of the j-ISBA Section (short of Junior-ISBA), so it is now possible to join us and become a member! (https://bayesian.org/sections/j-ISBA). Members of j-ISBA must be students member of ISBA or ISBA members within 5 years of having completed their degree.

The j-ISBA Section aims to:

1. promote initiatives for early career Bayesian researchers, providing a forum for discussions as well as diffusion of news and information.
2. organise conferences, workshops, and sessions in other meetings.
3. provide social networking tools for early career Bayesian researchers in order to discuss research and exchange ideas with each other.

Visit our webpage and stay in touch within the session! Give us suggestions and new ideas for improve networking activities of junior researchers! You will have the opportunity of knowing people, exchanging ideas, connecting with the Bayesain community at large, being aware of the main events planned for young people within the most important Bayesian events, and much more besides.

We are actually in talks with the ISBA board and other ISBA sections about future j-ISBA events, so stay tuned for some announcements in the near future.

j-ISBA waits for you!

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NEWS FROM THE WORLD

Announcements

2014 ISBA World Meeting

Planning has already begun for the 12th ISBA World Meeting, to be held in July 2014 in Cancun, México. See next issues of ISBA Bulletin for the first announcement and more information.

Special issue on Bayesian Probability and Statistics in Management Research: A New Horizon. ***The Journal of Management***

A wide range of disciplines have considered the use of Bayesian methods a modern-day "revolution", yet the organizational literature has not evaluated or participated in this revolution. This call for papers solicits contributions that will assist researchers in understanding and implementing methods of Bayesian estimation, inference, and scientific reasoning across a broad range of areas.

Papers are due December 15, 2013, allowing researchers time to develop their thinking and skills in relevant areas (detailed in the call for papers). We encourage multidisciplinary collaborations and submissions from many fields, such as Mathematical Statistics and Probability, History and Philosophy of Science, Science and Technology Studies, and Sociology of Scientific Knowledge. See http://www.sagepub.com/upm-data/48271_Special_Issue_Call_for_Papers___Bayesian_Methods.pdf for an overview of the Special Issue and references. You can also contact Michael Zyphur and Fred Oswald (mzyphur@unimelb.edu.au) (foswald@rice.edu) to discuss possible paper topics and to volunteer as a scholar interested in reviewing these contributions.

Meetings and conferences

International Conference on Mathematical Finance, Miami , Florida. 22-24 March 2013.

Developments in the theory, application and practice of mathematical Finance/Financial Engineering/Computational and Quantitative Finance continue at a rapid pace. This conference is intended to expand the knowledge of theory, application of mathematical finance as well as to enhance the interchange of understandings between academics and practitioners of mathematical finance in its variety of spins and flavors as it applies to application of mathematics, numerical methods and statistics to financial issues.

The conference is expected to include experts from both academia and industry talking on subjects relevant to models as well as solutions to existing and developing models. The conference is expected to consist predominantly of multiple sessions with peer reviewed paper presentations, with discussants and question and answer opened to the floor. There will also be presentations by invited speakers and panel discussion which will also be opened to the floor. Working sessions may be arranged. Additional information can be found at http://www.bradley.edu/academic/continue/professionals/imfc/index.dot.

ESOBE 2012 (European Seminar of Bayesian Econometrics), Vienna, Austria, November 1-2, 2012.

The ESOBE meetings, launched in 2010, aim at bringing together researchers and professionals interested in the application of Bayesian inference in areas such as finance, economics, business, and marketing. They are also intended as a discussion forum for new and recent research methods that are capable to face the challenges associated with the application of Bayesian methods to increasingly complex models and high-dimensional data environments. The Scientific Committee (Sylvia Frühwirth-Schnatter, Gary Koop, and Herman van Dijk) invites submission for contributed talks, junior scientist presentations, and poster presentations before August 1, 2012. Young researchers may apply for travel grants. For more details and online submission see http://esobe2012.wu.ac.at/

Bayes on the Beach 2012, Sunshine Coast, Queensland. 6 - 8 November, 2012.

The 9th International Workshop for the Australasian chapter of the International Society for Bayesian Analysis (ISBA) and the annual meeting of the Bayesian section of the Statistical Society of Australia, Inc. (SSAI). You are warmly invited to a meeting of people involved or interested in Bayesian research and applications.

Bayes on the Beach will be held on the Sunshine Coast (venue to be announced) during November 6-8, 2012. The conference provides a forum for discussion on developments and applications of Bayesian statistics, and includes seminars, a poster session, tutorials and workshops. There is also the possibility of 1 day short courses on Monday the 5th and Friday the 9th of November.

International keynote speaker. Robert Wolpert is Professor of Statistical Science at Duke University Department of Statistical Science, Durham NC, USA.

Australian keynote speaker. Matt Wand is Distinguished Professor of Statistics in the School of Mathematical Sciences, University of Technology, Sydney.

Conference registration opens September 2012. More details to follow. Please see our website for up-to-date information (http://bragqut.wordpress.com/beachbayes2012/).

ISBA Regional Meeting and International Workshop/Conference on Bayesian Theory and Applications (IWCBTA), Varanasi, India. 6 - 13 January, 2013.

The DST Centre for Interdisciplinary Mathematical Sciences, Banaras Hindu University, is organizing an ISBA Regional Meeting and International Workshop/Conference on Bayesian Theory and Applications (IWCBTA) during January 6-10, 2013. Details regarding the events are available on the conference website: http://www.bhu.ac.in/isba. The proposed events are co-sponsored by the International Society for Bayesian Analysis, the Indian Bayesian Society and the Indian Chapter of International Society for Bayesian Analysis.

9th Conference on Bayesian Nonparametrics, Amsterdam, Holland. 10 - 14 June, 2013.

The Bayesian nonparametrics (BNP) conference is a bi-annual international meeting bringing together leading experts and talented young researchers working on applications and theory of nonparametric Bayesian statistics. It is an official section meeting of the Bayesian nonparametrics section of the International Society for Bayesian Analysis (ISBA) and is co-sponsored by the Institute of Mathematical Statistics (IMS).

Additional information can be found at http://www.bnp9.win.tue.nl/.

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ISBA MEMBERSHIP

AUTUMN MEMBERSHIP PROMOTION

- Merlise Clyde -
ISBA Executive Secretary
clyde@stat.duke.edu

New ISBA, Section and Chapter memberships are extended until Dec 31, 2013! Join before October 15th in time to participate in the ISBA and Section Elections! Current members may renew early for next year, so renew any time now before Dec 31 to save $10 on next year's ISBA dues! ISBA offers discounted rates for students and individuals from developing countries, as well as a 25% savings on IMS membership.

ISBA offers sections in Bayesian Computation, Bayesian Nonparametrics, Biostat & Pharma, Finance and Business, Industrial Statistics, Objective Bayes, and coming soon Environmental Statistics! The new Junior ISBA section for students and new researchers that are within 5 years of completing a degree provides networking and more for new researchers!

See the Membership page (ISBA Membership) for details for how to join and the benefits that ISBA membership provides! Anyone with an ISBA account should login first so that the membership is added to your account. If you are unsure whether you have an account with ISBA or need any assistance with your account please contact the web page Info-bayesian. ▲
