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December 2013

The official bulletin of the International Society for Bayesian Analysis

A MESSAGE FROM THE PRESIDENT

- Merlise Clyde -ISBA President, 2013 clyde@stat.duke.edu

As 2013, "the Year of Statistics" draws to an end, it is time to thank everyone who has contributed so much to ISBA this year and welcome the new officers on board! You should have received the list of new ISBA officers, Board members, and section officers from the recent election (I think there are now over 49 officers in ISBA!) On behalf of ISBA, I thank them for their willingness to serve ISBA. There were many tight elections with 2 ties so for those agreeing to stand for election, but with no official role yet - watch out - I may be contacting you early next year when we put together the next slate!

I wish to express my deep gratitude to Past-President Fabrizio Ruggeri for his energy over the last three years on the Executive Committee and Board in creating new initiatives for ISBA, in particular his push to launch the Latin American summer school this past summer in Costa Rica. The next one is planned as a satellite event with ISBA 2014 starting July 10th and ending on Sunday the 14th in time for the start of ISBA 2014!

As I leave the office of ISBA President (well, I will still be around as Past-President next year and member of the Board of Directors) I am excited to turn over the reins to Sonia Petrone (President 2014), and President-Elect Alexandra Schmidt (President 2015) to continue current initiatives and chart new directions for ISBA! I also wish to thank Mike Daniels, who has provided many hours as ISBA's Treasurer and overseeing IS-BA's new financial plan, and welcome Murali Haran to the Executive Committee for the next three years as the next ISBA Treasurer! Vanja Dukic also deserves my heartfelt thanks for all of her work on the Program Council for ISBA 2012 in Kyoto, for her tremendous patience in testing the new abstracts and travel awards submissions, and for her role in coordinating all of the other meetings that ISBA sponsors and endorses! Executive Secretary Steve Scott has done a tremendous job with memberships - our current membership is now at 1071 and is the highest it has even been in a vear with no world meeting (and I believe as high or higher than this time last year!) with members attracted through the list of outstanding section and regional meetings. It has been a pleasure working with our fantastic publication editors - Fiang Liang (Bulletin editor), Jarad Niemi (webmaster) and Marina Vannucci (Editor in Chief of Bayesian Analysis) who are all completing the first year of their terms. These are all critical and challenging positions for communications about Bayes in our society and with the worldwide community interested in Bayes and I wish them all the best for 2014! I look forward to continuing to work with the ISBA Officers, the Board of Directors, Section and Chapter Officers next year.

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

2013 was a banner year for ISBA sections and chapters, starting off with the regional meeting in Varansi, India, the 9th BNP meeting (now being organized by the Bayesian Nonparametric Section) in Amsterdam in June, the first Junior-ISBA meeting held in conjunction with BAYSM in Milano, Industrial Statistics (in conjunction with and the 13th Objective Bayes meeting (now under the auspices of the OB section) and the first Economic Finance and Business section meeting. The latter two were held this month in Durham, NC with "Bayes250", the (last at least for 2013) "Celebration of the 250th Anniversary of the Essay on Bayes Theorem". It was with great sadness that the Bayes250 meetings started off with the announcement that Honorary Lifetime ISBA member Dennis Lindley had passed away on December 14th, but this also provided a time to celebrate one of the founding fathers of Bayesian statistics during the meeting. Speakers Steve Stigler, Steve Fienberg, and Adrian Smith (interviewed by Alan Gelfand) provided delightful reflections on "Bayes Past" up to the MCMC era. Chris Sims continued the theme with "Bayes Present" and real world decision problems, with Michael Jordan emphasi-

A Message from the Editor

- Feng Liang - liangf@illinois.edu

2013, the International Year of Statistics and the 250th anniversary of the Bayes' Theorem, has been a great and exciting year for all of us! There have been many activities worldwide and many new developments/news in our society, as summarized in the *last* message from our president.

In this December issue, you'll also find an update from our Editor-in-Chief of BA and fresh reports on the very 1st EFaB Section meeting and the 13th Objective Bayes meeting, which just took place weeks ago at Duke campus (Durham, NC, USA). In the Students' Corner Section, our Associate Co-Editors Isadora Antoniano and Antonio Ortiz asked Giulia Marcon, 4th year Ph.D. student at Bocconi University, to tell us about an interesting conference she's been to, the first "Bar-

zing "Bayes Future" and challenges ahead! While over 200 people were able to attend the celebration, we will be providing the videos on the ISBA YouTube channel and in the ISBA video library shortly for the enjoyment of Bayesians everywhere.

Continuing Education with video and online content in addition to short courses will continue to be an important direction for ISBA as part of our outreach. I am pleased to see that several short courses will be offered at ISBA 2014, in addition to the Bayesian Foundation Lectures, that will be videotaped for wider dissemination. Advanced thanks to Raquel Prado (Program Council Chair) and Andres Christian (Chair of the Local Organization Committee) as well as the members of the Scientific Program and Local Organizing Committees who have been hard at work on the program and details for ISBA 2014. I encourage everyone to check out the ISBA 2014 website for current updates on registration and ways to participate!

I am looking forward to starting the Bayesian New Year with MCMSki and BNPSki in January 2014 and hope that everyone has a Happy New Year!

Camp". Well, if you don't know why it's called that name, read her article.

It has been a year since I became the new editor of the Bulletin. I have enjoyed this work every much, due to a great team of AEs (Isadora Antoniano, Antonio Ortiz, and Francisco Torres), former editor Manuel Mendoza, and contributors like ISBA Section Chairs, Editor-in-Chief of BA, our president, and many others. They have always submitted their contributions or have obtained interesting contributions under very rigid time constraints, which has made my job, as editor, always very easy. I want to take this opportunity to say a sincere thank you for all your help and support!

Last, but not least, a word of thanks to YOU, dear readers of the Bulletin! In order for the Bulletin to become better, we need the help from YOU, the readers, and the best way to help us is to email us your suggestions/contributions in 2014!

BAYESIAN ANALYSIS - A MESSAGE FROM THE EDITOR

UPDATE FROM BA

- Marina Vannucci -Editor-in-Chief marina@rice.edu

The December issue of Bayesian Analysis is a special issue, featuring selected contributed papers presented at the 2012 World Meeting of the International Society for Bayesian Analysis, held in Kyoto, Japan. These are six papers, focusing on topics such as clustering, nonparametric Bayes, algorithms for posterior approximation and methods for high-dimensional settings. All of the ISBA 2012 manuscripts were vetted through the standard review procedures for Bayesian Analysis, and these are the ones selected for publication.

We remind readers that at BA it is now possible for individual authors to submit manuscripts for consideration as discussion papers. Such submissions will first go through our regular review process and, if accepted, the Editor in charge and the EiC will make a decision as to whether the manuscript can make a good discussion paper. If you wish to submit your work for consideration, please select "Article with Discussion" when submitting at EJMS.

ISBA - SECTIONS

ECONOMICS, FINANCE & BUSINESS SECTION

- Mike West -ISBA/EFaB Founding Chair 2012-2013 On behalf the 2013 Executive Committee mw@stat.duke.edu



EFaB: The ISBA Section on Economics Finance & Business

I am pleased to open this letter with a report that, at the end of 2013, EFaB has 117 active members. Now into our second year, EFaB is initiating and developing activities that respond to socioprofessional community interests and ambitions previously unmet. The growing and active membership reflects this.

A. EFaB Elections & Officers

As you will know, the 2013 ISBA elections concluded recently. Many of you will have already congratulated our newly elected Section officers. Nevertheless, please join me in congratulating and welcoming:

- Sylvia Frühwirth-Schnatter, of the Institute for Statistics & Mathematics, Vienna University of Economics & Business, our EFaB Section Chair-Elect 2014, to become Chair in 2015; and
- Giovanni Petris, of the Department of Mathematical Sciences, University of Arkansas, our EFaB Section Treasurer 2014–2015.

We look forward to continued growth, expansion and innovation in EFaB activities with Sylvia and Giovanni taking over the offices of Section chair and Treasurer.

Our thanks are also due to Luke Bauwens and Mike So for their enthusiasm and willingness to stand for EFaB offices; though not elected this year, there will be future opportunities!

I would like to recognize our outgoing Treasurer Fei Liu, of Queens College, City University of New York. Fei's (first) term in EFaB office ends on December 31st 2013. We kicked EFaB into life about 18 months ago, and Fei valiantly agreed to serve as founding treasurer to help us all launch the new Section. Thanks to all founding officers– and many initial members– our Section is now serving a number of professional functions not previously addressed, and we should thank Fei for her contributions in getting the Section "off-theground".

B. News of/from EFaB Members

Here are a few news items concerning EFaB members and events that may be of some interest. For future Bulletins, please be encouraged to email the Section chair with news items– professional news of members, and related activities/events– that you think may be of interest to other EFaB and ISBA members.

- More news from the recent ISBA elections: EFaB member David Banks of Duke University has been elected as Program Chair of one of our sister sections, the ISBA Section on Industrial Statistics.
- Paolo Giudici, of the University of Pavia, has been elected Chair of the scientific committee of the Italian Financial Risk Management Association. Paolo is also the coordinator of a new, multi-institutional and multinational research program, funded by Italian & EU research agencies, on *Multivariate Statistical Methods for Risk Assessment*, and seeks collaborations with Bayesians working in financial risk management.

Paolo is also involved in the establishment of a new University of Pavia Master's degree in Economics, Finance, and International Integration, which emphasizes Bayesian statistics and risk management as main building blocks.

- Jared Murray, student member of EFaB, recently successfully defended his PhD thesis on "Some Recent Advances in Non- and Semiparametric Bayesian Modeling with Copulas, Mixtures and Latent Variables" at Duke University.
- Mike So, of the Hong Kong University of Science & Technology, has been appointed as the regional co-director of the Hong Kong chapter of PRMIA, the *Professional Risk Managers' International Association*. PRMIA is a global organization of risk management professionals and academics with nearly 90,000 members. One of Mike's interests is

promoting and leading development of applications/collaborations between risk and Bayesian professionals.

Additional news items on awards to EFaB members at the EFaB@Bayes250 Workshop are reported below.

C. The 1st EFaB Workshop: EFaB@Bayes250

Many of you attended the 1st EFaB Workshop– EFaB@Bayes250– and the Bayes250 events at Duke University in December 2013. I hope– and expect– that you will all agree that the Section is off to a fine start with its free-standing research workshops, and that the Bayes250 meetings more broadly defined a notable and memorable few days. Attendance was terrific, with more than 70 EFaB participants– and quite a few others who drifted in-and-out of EFaB sessions from the concurrent and co-located O-Bayes 2013 Workshop. These two workshops and the Bayes250 Day events combined had over 200 participants.

EFaB@Bayes250 featured 2 fine tutorials, a day and a half of high-level research talks, and a vibrant poster session and reception. Highlights of the meeting were impressive talks by junior researchers and 28– also most impressive– EFaB posters. Many of the posters were presented by students and junior researchers, and covered topics ranging across the EFaB areas.



We have earlier recognized the support of a number of sponsors of the meeting. The participation of many students and junior researchers was enabled by awards funded by *The BEST Foundation, Google, Charles Schwab, The National Science Foundation,* as well as *SAMSI* and *NISS*. Among these, several received awards as designated *Google Scholars* at the meeting; these are EFaB junior members

- Brenda Betancourt, University of California, Santa Cruz, USA
- Angela Bitto, Vienna University of Economics & Business, Austria
- Andrea Eross, University of Southampton, UK

- Kyu Ho Kang, Korea University
- Xiaoye Ma, University of Minnesota, USA
- Alexandra Posekany, Vienna University of Economics & Business, Austria
- Matthew Simpson, Iowa State University, USA
- Jiangyong Yin, Ohio State University, USA

The Workshop also saw the award of the first EFaB research prizes, based on presentations in the EFaB Junior Researcher session of talks and the EFaB poster session, and assessed by the EFaB@Bayes250 award committee: Deepak Agarwal, LinkedIn; Fei Liu, Queens College CUNY, EFaB Treasurer and Award Committee chair; Mark Jensen, Federal Reserve Bank of Atlanta; and Steve Scott, Google. Announced and awarded by EFaB chair-elect Siddhartha Chib at the Bayes250 Day banquet, the awards made this year are as follows:

- The BEST-EFaB Research Award for junior researchers (\$1,000), to Jouchi Nakajima (Bank of Japan), in recognition of research presented in his talk on "Bayesian Latent Threshold Dynamic Models: Identifying Conventional and Unconventional Monetary Policy Shocks."
- The IBM-EFaB Student Research Award (\$1,000), to Zoey Yi Zhao (Duke University), in recognition of research presented in her poster on "Dynamic Dependence Networks: Multiregression Dynamic Models for Financial Time Series Analysis and Portfolio Decisions."
- An Oxford University Press OUP-EFaB Research Prize (OUP book award), to Hao Wang (University of South Carolina), in recognition of research presented in his poster on "Scaling It Up: Stochastic Search Structure Learning in Graphical Models."
- An Oxford University Press OUP-EFaB Research Prize (OUP book award), to Jarad Murray (Duke University), in recognition of research presented in his poster on *"Flexible Bayesian Density Regression without Discrete Mixtures."*

I am sure that you will join me in congratulating the awardees if you did not have a chance to do so at the meeting. We should also recognize the numerous other students and junior researchers who participated in these terrific sessions,

and who competed for these awards. We should also thank the members of the Award Committee for their work on behalf of the Section.

D. The 2nd EFaB Workshop: The 2014 ISBA-George Box Research Workshop on Frontiers of Statistics

Arrangements for this unique meeting are progressing. EFaB members will have seen the recent announcements and call for papers. The 2014 **ISBA-Box Research Workshop**, co-organized by EFaB, the ISBA Section on Industrial Statistics, and the ISBA Section on Objective Bayes, will take place on May 20th–22nd 2014 at the George Washington University (GWU) in Washington DC. The workshop is formally endorsed by ISBA and co-sponsored by I²SDS, the Institute for Integrating Statistics in Decision Sciences at GWU.

This research workshop will feature invited and contributed presentations on current, topical areas of Bayesian analysis that link to areas in which George Box worked. In most of these areas, he was of course a pioneer. Sessions will feature presentations on research in:

- dynamics and control,
- time series and forecasting,
- design and experimentation,
- model assessment and criticism,
- objective Bayes,
- Bayes:frequentist interfaces,
- applications in industry, business, and economics,

and linkages to Box's influences on current research frontiers.

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We are also very pleased to have George Tiao speaking at the Workshop banquet. George Tiao, the W. Allen Wallis Professor of Econometrics and Statistics (emeritus), University of Chicago, was, of course, a long-time collaborator of Box's on core areas of Bayesian analysis; among many other contributions, he co-authored the seminal text on *Bayesian Inference in Statistical Analysis*. We look forward to a robust and vibrant research meeting on these topical areas of interest we to EFaB members and ISBA more broadly. This is a major research meeting (co-)organized by our new and developing ISBA Section, and EFaB of

members are encouraged to participate as well as to pass along the news to colleagues.

Please visit the workshop web site for more information, including the list of invited and contributed talks, call for participation, and schedule, and feel free to contact Refik Soyer, the organizing committee chair, with enquiries: soyer@gwu.edu. Registration and hotel information will be available at that web site very soon.

E. The 2014 ISBA World Meeting

We have updated news on plans for ISBA 2014– the next major conference in the biennial ISBA World Meeting series– in Cancun on July 14th-18th, 2014. As part of this major event, EFaB has the following sessions:

◊ EFaB Invited Session: Each ISBA Section has one allocated invited session. EFaB Program Chair Abel Rodriguez and his program advisory committee selected a panel on

"Big Data Challenges to Bayesian Analysis in Economics, Finance & Business."

Four invited panelists will make short presentations on their work and broader questions of the needs in EFaB areas to refocus and redefine some of what we do in theory and methodology to address big data challenges. The core goal of the session will be to air and touch on a range of such issues, and then engage the audience in generating questions and new directions, leveraging the panelists' presentations to generate an active discussion session.

◇ EFaB Special Topic Invited Session: In the ISBAwide competition for invited session slots, our Program Chair Abel Rodriguez was successful in landing an EFaB session. The EFaB sponsored Special Topic Invited Session is:

"Structure, Sparsity & Networks: Bayesian Dynamic Modelling for Multivariate Time Series."

with speakers:

- Hongxia Yang (IBM Watson)
- Jouchi Nakajima (Bank of Japan)
- Rodney Strachan (Univ of Queensland)

Further details will appear at the main ISBA 2014 web site. While these specific sessions are sponsored by EFaB, there will be many other EFaB-relevant sessions as well as interesting talks and, of course, highly active poster sessions. I am sure many of you are planning to attend and participate in ISBA 2014, and look forward to seeing a strong attendance at EFaB sessions as well as a major presence of EFaB members at our biennial World Meeting.

F. ESOBE

In previous Bulletins, I have noted the activities of the *European Seminar on Bayesian Econometrics (ESOBE)*, a discussion forum for novel and recent research in a wide range of topics in the field of Bayesian econometrics. EFaB officially endorsed *ESOBE 2013*, the latest in the annual series of ESOBE meetings, and we hope to see productive interactions and collaborations between EFaB and ESOBE in coming years. Among other things, please note that the 2014 ESOBE meeting will be in the first week of November 2014, hosted by the *ESSEC* business school at the La Défense campus in Paris. More details will be forthcoming at the ESOBE web site in coming months, and advertized to EFaB members.

G. JSM 2014 Events in EFaB Areas

The annual Joint Statistical Meetings (JSM) are in Boston USA in early August 2014. As you will know, ISBA collaborates with our sister ASA organization, and the ASA Section on Bayesian Statistical Science (SBSS) in particular, in connection with Bayesian sessions, courses, etc. The JSM program will be coming along in spring, but there are a couple of events of likely interest to some EFaB members that SBSS has already established on the JSM program:

◊ SBSS invited session on "High-dimensional Time Series, Sparsity, & Dynamic Networks," and

◊ SBSS 1-day short-course on "ÒBayesian Dynamic Models: Time Series Analysis & Forecasting,Ó by Raquel Prado & Mike West.

Full details will be published at the JSM 2014 web site in early 2014.

H. Member Involvement in EFaB

Reminders:

◊ Membership: Please help to advertize EFaB and bring the Section to the attention of colleagues, students and others you think may be interested in joining. In addition to regular and lifetime membership opportunities, EFaB offers reduced membership fees for students and for all members from low-income countries. And, if you are an annual member and have not yet renewed membership for 2014, please do so soon!

◇ Invitation: We invite and encourage all ISBA members to come forward with ideas for EFaB activities of any kind (consistent with the Section aims and bylaws), and especially related to shortcourses, webinars, workshops and conferences. Activities linked to other groups, organisations and businesses are to be encouraged, as well as more traditional forms of educational outreach. Please visit the EFaB pages at the ISBA site. If you are interested in discussing, participating, volunteering, (volunteering others), and/or have any other input, please do not hesitate to come for-

ward, and feel free to contact any members of the EFaB executive committee to discuss.

I. Signing-off

This is my 6th and final EFaB letter/report for the ISBA Bulletin. My term as EFaB Chair ends on December 31st 2013. The Section seems to be in good shape in terms of membership and engagement in developing our profession consistent with the Section goals, and I look forward to seeing it grow and thrive in the coming years. I have been fortunate to work with other founding Section members, and effective and engaged EFaB executive committee members, and thank all for their work and support over the first 18 months of the life of the Section. I am sure you will join me in welcoming Sid Chib as he moves from Chair-Elect to Chair for 2014, and in supporting him and the leadership of the Section in the coming year.

Last, but not least, very best wishes to all for the holidays and New Year 2014.

OBJECTIVE BAYES SECTION

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

I am very pleased to report the success of O-Bayes 2013: Celebrating 250 Years of Bayes, the tenth international meeting on objective Bayes methodology, which took place at Duke University from Dec 15-19, 2013. Surrounding Bayes 250 Day, and co-located with the EFaBBayes250 workshop, the 111 participants at O-Bayes 2013 enjoyed a full day of tutorials, 21 lively invited talks and discussions, a dazzling poster session and a super fun party at the home of Jim and Ann Berger. Links to all the presentations are now available on the O-Bayes 2013 conference page (click on Program). Congratulations to the scientific committee of Susie Bayarri, Jim Berger, Jose Bernardo, Brunero Liseo, Christian Robert and

Dongchu Sun for organizing yet another brilliant meeting. Finally, if hosting an objective Bayes meeting would interest you, we are now actively soliciting proposals for our next international meeting, O-Bayes 2015, which we anticipate will take place around December 2015.

As 2013 comes to a close, warmest congratulations to our newly elected officers, Christian Robert (Chair-elect) and Judith Rousseau (Secretary). I would also like to extend a special thanks to the OB officers Luis Pericchi (Chair-elect), Susie Bayarri (Program Chair), Marilena Barbieri (Secretary) and James Scott (Treasurer) for all their help and support. As I step down, I am delighted that Luis will be taking over the reigns as Chair, and as Marilena steps down, I would like to specifically acknowledge her generous contributions throughout. Best wishes to all for a Happy New Year!



Ed George and Susie Bayarri giving the Jeffreys Excellence Awards to the best Posters: Andrew Brown, Jyotishka Datta, Tri Le, Dingbo Li, Jean-Bernard Salomond, Zoe van Havre, Xiaojing Wang, and Andrew Womack, with Brown, Le, and Wang being the excellence prize winners.

STUDENTS' CORNER

Isadora Antoniano and Antonio Ortiz isadora.antoniano@unibocconi.it aao33@kentforlife.net

Three months have past since we last met at this corner. For some, time flew, life went on with not many changes. For others, the last months have been filled with the excitement of new experiences. A first paper submitted or published, a first conference attended, a first talk or poster ... But life is not all about work, there are also new places to visit and new friends to meet. Amongst these new friends, for me at least, is Giulia Marcon, 4th year Ph.D. student at Bocconi University, in Milan, working on extreme value theory under the supervision of Profs. Pietro Muliere and Simone Padoan. Giulia is going to tell us about another new thing, a "non conference": an encounter between the young and the experienced, students and professors, Bayesians and frequentists; an occasion for working, playing, discussing and even dancing...

Student Voices

by Giulia Marcon

giulia.marcon@phg.unibocconi.it

One of the most famous of Zeno's paradoxes is the one about the perpetual race between Achilles, the best runner in Greece, and an old lazy tortoise. This paradox has been solved, discussed, explained, declined during more then twenty four centuries. Now, imagine all of us statisticians as Achilles, trying to reach new fast solutions to face new statistical problems. Will we manage to catch up with them? This was the main question addressed during the first BarCamp "Technology foresight and Statistics for the future" organized in honour of the 150th anniversary of the Politecnico di Milano at the end of the SCo2013 conference.

At the beginning of the event I reached up to one of the organizers and asked why they chose to call it a "BarCamp" and I was surprised and pleased to hear that they had no idea! It was an experiment for all of us, and that probably became a strong point for the meeting because of its originality. They expected it to be a space for sharing ideas, knowledge and experiences, as well as stimulating new perspectives on Statistics and technology. But what was the BarCamp at the end? All this even more... It came out as an amazing experience for young researchers to discuss about technology foresight, to put ourselves to the test in writing an essay about our visions of the future of Statistics, playing a drama and... meeting new people and starting new friendships!

A competition was organized challenging young statisticians (< 33 years old) to envision statistical models and methods that may have an impact on the development of technology in the next 25 years. I hope my personal experience will give you an idea about the overall experience. One day, a group of statisticians from the University of Groningen (Ivan Vujačić and Javier Gonzalés), Universitá di Palermo (Antonino Abbruzzo) and Universitá Bocconi (it's not the beginning of a joke) decided to join the competition... what a drama! Exactly, we wrote and played a drama called "Lemma on technology foresight and Statistics for the future". It was selected among the best proposals of the competition, together with "Statistics: pushing or pulled by technology?" (Antonio Canale, Universitá di Torino), "Statistics and new technologies: challenges and new opportunities" (Davide Pigoli, University of Warwick) and "Statistics: an important player in the Big Data age" (Diwei Zhou, University of Brighton).

The day went through with discussion groups about Big Data and technology, visualizing data and computational statistics. The table Big Data and Technology focused on the issues arising from managing and analysing the new kind of data that statistics has to deal with nowadays. Thinking about Statistics as a tool to answer the questions of today and of tomorrow, arising from the large amount and quality of the data and the new software and hardware available. Even visualizing Big Data is a challenge when you start working on it, and analysing such data is a much bigger problem. A natural conclusion of the discussions is that statistical skills are not enough. To reach a solution, we need a combination of software programming, statistics, storytelling, art and a bit of imagination. Whether a single person or a group is required is up to you. The round table on Computational Statistics concerned all challenges of computing in statistical modelling like parallel computing, data storage, multidisciplinarity and data assimilation. Science has a lot of different applications and Statistics can help in speeding up processes, providing more information and doing so more efficiently. In the words of

Prof. Kanti V. Mardia, "Statistics without science is incomplete, Science without statistics is imperfect". Finally, the table about **Visualizing Data** was focused on the open problems related to Data visualization and statistical communication. Some key aspects lead the discussion towards the curse of dimensionality, dynamic graphics, subjectivity and interpretation. A collaboration between statistics and infographics may be needed to get the best possible results in visual communication.

What's else? "Insufficient data for meaningful answer".

Dissertation Abstracts

Keeping up the spirit of unity born at the Bar-Camp, the contact between the past and the future, we thought it a good idea to present to you a different type of dissertation abstract, by Marta Crispino. What type of dissertation abstract? It's hard to say. In Italy it's called Laurea specialistica and it could be equivalent to an Honours Bachellor's degree or to a Masters degree, depending on the country. But to avoid unnecessary polemics, lets just say that it is not a Ph.D. thesis, since Marta is only half way through the first year of the Ph.D. in Statistics at Bocconi University. In this way, we fix our geographic coordinates and make a shift in time instead. After all, the undergraduates of today will be the Ph.D. students of tomorrow, just as we, the young Bayesians will become the senior researchers sooner than we'd like to think.

BAYESIAN LEARNING OF BAYESIAN NETWORKS

by Marta Crispino marta.crispino@phd.unibocconi.it Corso di laurea specialistica in Discipline Economiche e Sociali, Bocconi University, Milan, Italy Advisor:

Prof. Sonia Petrone

In this thesis we address the important problem of the determination of the structure of Bayesian network models. The structure of a Bayesian network represents a set of conditional independence relations that hold in the domain. Thus, learning the structure of the Bayesian network model that a practical application of structure learning to a represents a domain can reveal information about its underlying causal structure. The contributions of this thesis include (a) a detailed review of the literature about structural learning, with a focus on Bayesian methods; (b) the development of the Bayesian method through the incorporation of a prior probability of the structural space of graphs (so far considered uniform); and finally (c)

huge microarray dataset. In particular we compare the performance of Bayesian networks with the Lasso regression model. Through this comparison we show some interesting advantages of the former, regarding particularly the detection of causal dependency relations between the variables in the domain. 🔺

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