Barcelona BioMed Conference Bayesian methods in Biostatistics and Bioinformatics December 17-19, 2012

Programme

Monday, December 17, 2012

8.30   Registration

9.00   Welcome by Joan **Joan J. Guinovart**, IRB Barcelona Director

Session I. INNOVATIVE DESIGN OF EXPERIMENTS (I)
Chair: Josep Ginebra, Universitat Politècnica de Catalunya (Barcelona, Spain)

9.15   **Donald Berry**
Adaptive Design and Personalized Medicine: The Future Is Now

9.50   **Roger Lewis**
An Overview of Bayesian Adaptive Clinical Trial Design

10.25   **Beat Neuenschwander**
Historical Data Priors: Methodological and Practical Aspects

11.00   Coffee break

Session II. INNOVATIVE DESIGN OF EXPERIMENTS (II)
Chair: Donald Berry, MD Anderson Cancer Center (Houston, TX, USA)

11.20   **Michele Guindani**
Test-based phase II time-to-event targeted therapy trials

11.55   **Lisa Hampson**
Combining opinion with clinical data in rare disease trials

12.30   **Michael Parides**
Making more with less—Bayesian approaches in exploratory trials

12.50   **Nicky Welton**
Value of Information for research prioritisation and optimal trial design

13.10 – 15.00 Lunch (FrescCo, C/ Carme, 16)

Session III. BIOSTATISTICS & EPIDEMIOLOGY
Chair: Nikolaos Demiris, Athens University of Economics and Business (Athens, Greece)

15.00 **Julian Higgins**
Bayesian applications in evidence synthesis

15.35 **David Dunson**
Bayes learning of conditional response distributions

16.10 **Sonia Malefaki**
Threshold Regression Models with Random Effects for Recurrent Events

16.30 **Marc Baguelin**
Reconstructing past influenza epidemics from consultation, virological surveillance data and a contact survey

16.50 **Ramón Clèries**
Bayesian approach to predicting cancer incidence for an area without cancer registration by using cancer incidence data from nearby areas

17.10-19.30 Poster session

Tuesday, December 18, 2012

Session IV. BAYESIAN INFERENCE FOR BIG DATA (I)
Chair: David Rossell, IRB Barcelona (Barcelona, Spain)

9.15 **Marina Vannucci**
Bayesian Approaches for Large-Scale Data Integration

9.50 **Chris Holmes**
Auxiliary counting variables for posterior decoding of Hidden Markov Models with applications in the analysis of structural variation arising in cancer genomics

10.25 **Zhaohui Qin**
Towards the understanding of the three-dimensional genome organization Statistical challenges and opportunities for analyzing Hi-C data

11.00 Coffee break

Session V. BAYESIAN INFERENCE FOR BIG DATA (II)
Chair: Valen Johnson, Texas A&M University (College Station, USA)

11.20 **Mark Girolami**
Bayesian Inference in Systems-Based Biology

11.55 Laura M. Sangalli
Studying blood-flow velocity field and other hemodynamical quantities via spatial regression models with differential regularization

12.30 Veera Baladandayuthapani
Integrative Bayesian Analysis of Multi-platform Genomics Data

12.50 Mark van de Wiel
Bayesian analysis of RNA sequencing data by estimating multiple shrinkage priors

13.10 – 15.00 Lunch (FrescCo, C/ Carme, 16)

Session VI. MODELING DEPENDENCE
Chair: Robert Castelo, Universitat Pompeu Fabra (Barcelona, Spain)

15.10 Sach Mukherjee
Scalable exploration of signalling networks

15.45 Peter Green
 Bayesian graphical model determination

16.20 Michail Papathomas
Using the Dirichlet process clustering model to assist graphical linear model selection: investigation of high order interactions between environmental/genetic covariates

16.40 Coffee break

Session VII. APPLICATIONS IN -OMICS
Chair: Michele Guindani, MD Anderson Cancer Center (Houston, TX, USA)

17.00 Luis Carvalho
Graph-regularized centroid estimation on a hierarchical Bayesian model for genome-wide association studies

17.20 Eduardo Eyras
Epigenetic regulation of RNA

17.40 Victor Manuel Bellon
Cancer diagnosis with mass spectrometry and Gaussian Join Tree classifiers

18.00 Rebecca Graziani
Bayesian Non parametric identification of Pre-versus-Post treatment biomarker effects on Progression free survival

20.30 Speakers' dinner

Wednesday, December 19, 2012

Session VIII. HYPOTHESIS TESTING, MODEL CHOICE AND COMPUTATION (I)
Chair: M.J. Susie Bayarri, University of Valencia (Valencia, Spain)

9.15   **Valen Johnson**
Phase II clinical trials based on uniformly most powerful Bayesian tests

9.50   **Gonzalo García-Donato**
On sampling strategies in Bayesian variable selection problems with large model spaces

10.25 **Steve McEachern**
The Calibrated Bayes Factor

11.00 Coffee break

Session IX. HYPOTHESIS TESTING, MODEL CHOICE AND COMPUTATION (II)
Chair: Omiros Papaspiliopoulos, Universitat Pompeu Fabra (Barcelona, Spain)

11.20 **Harvard Rue**
Towards "relaxed models" in R-INLA

11.55 **Martyn Plummer**
Bayesian modelling with JAGS

12.30 **David Conesa**
Assessing the spatial distribution of species

12.50 **Simon Heath**
A Bayesian model for the analysis of methylation probabilities and genotypes in individual and multiple samples from whole genome bisulfite sequence data

13.10 Concluding remarks