Submittee: Yumi Kondo
Date Submitted: 2014-04-09 12:08
Title: UBC Joint Student Statistics Seminar
Event Type: Conference-Workshop

Location:
Room 7000 at SFU Harbour Centre (555 West Hastings Street)

Dates:
March 16, 2014

Topic:
Any topic related to statistical research.

Methodology:
Lectures and poster sessions

Objectives Achieved:
We aim at providing a place for graduate students to present their research, sharpen their presentation skills, seek potential collaboration opportunities, and interact with other students in their field.

Organizers:
Kondo, Yumi, The Department of Statistics, University of British Columbia /// Liu, Yang, The Department of Statistics, University of British Columbia /// Grosskopf, Michael, The Department of Statistics, Simon Fraser University /// Meng, Vivian, The Department of Statistics, University of British Columbia

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Speakers:
Name: Pulindu Ratnasekera / Title: Functional Regression on Irregularly Spaced Time Series Data with Time Scale subject to Measurement Error / Abstract: This study can be mainly divided into two sections. In the first section it attempts model a irregularly spaced time series data where time scale is being measured with a measurement error. Modelling a irregularly spaced time series data alone is quite challenging as traditional time series techniques only capture equally/regularly spaced time series data. In addition to that, the measurement error in the time scale make it even challenging making this study to incorporate measurement error models and functional approaches to model the time series. Thus, this study is based on a Bayesian approach to model a flexible regression function when the time scale is being measured with a measurement error. The regression functions are modelled with regression P-splines and the exploration of posteriors are carried out using a fully Bayesian method using Markov Chain Monte Carlo (MCMC) techniques. In

section two, study attempts to regress response and predictor irregularly spaced time series data which were modelled using regression P-splines and fully Bayesian method, using functional regression methods. /// Name: Pavel Krupskii / Title: Structured factor copula models for multivariate data / Abstract: In factor copula models for multivariate data, dependence is modeled via one or several common factors. The models allow great flexibility in modeling different types of dependence structure including tail dependence and asymmetry. We propose two structured factor copula models for the case where variables can be split into non-overlapping groups such that there is homogeneous dependence within each group. A typical example of such variables occurs for stock returns from different sectors. We use some tail-weighted measures of dependence to select appropriate copulas in the model and to assess the adequacy of fit in the tails. We apply the structured factor copula models to analyze a financial data set, and compare with other copula models for tail inference. /// Name: Michael Grosskopf / Title: High-Energy-Density Laboratory Astrophysics, Uncertainty Quantification in Computer Experiments, and Lessons Learned Working in a Large Multidisciplinary Scientific Project / Abstract: This talk will be a highly application-oriented discussion regarding uncertainty quantification efforts with the Center for Radiative Shock Hydrodynamics. I will discuss a bit about what the Center did and why it was important, why statistical methods for uncertainty quantification (UQ) were a main focus of the project and an important driver behind the funding of the work, how the focus on UQ affected the collaboration between disciplines and a bit about other things learned in the process of the work. /// Name: Dr Paul Gustafson, UBC Faculty Speaker / Title: The Publication Process in Statistics / Abstract: Drawing on my experiences as both an author and an editor, I'll offer some comments on the process of publishing statistical research in peer-reviewed venues. Along the way, I'll hope to provide some helpful tips for young researchers. /// Name: Dr Richard Lockhart, SFU Faculty Speaker / Title: Some statisticians I knew and some I didn't / Abstract: I intend to talk about some statisticians trying to mix a bit of history with a bit of personal reminiscence. I will mention Blackwell, Neyman, Fisher, Pearson, Pearson and others. I will touch a bit on statisticians and eugenics. The theorems will be hard to spot and the proofs even harder. /// Name: Neil Spencer / Title: Factorial Designs with Pre-specified Randomization Restrictions: An Algorithmic Approach / Abstract: Full factorial and fractional factorial designs with randomization restrictions (e.g., block designs, split-plot designs, and split-lot designs) are often used for industrial experiments when complete randomization of the trials is impractical. In this talk, we focus on the randomization defining contrast subspace (RDCSS) formulation of randomization-restricted experiments, namely star-based (Ranjan, Bingham, and Mukerjee (2010)) designs. We propose a new efficient relabelling-based algorithm for obtaining such RDCSS-based designs with pre-specified randomization restrictions. The novelty in our approach lies in the use of the underlying geometry of stars to reduce the search space of possible relabellings. /// Name: Abdollah Safari / Title: Generating a random gene expression dataset from a Gene Network / Abstract: Inference of gene regulatory networks (GRN) from gene expression data is a major challenge in Biology. There are several methods to reconstruct a GRN from gene expression data sets. However, evaluating those methods is not easy since there is no true GRN for a given data set. I'm, currently working on a group project to generate a date set from a given GRN. In this talk, I'm going to discuss about the different issues related to this project, and then briefly introduce the method which has been used mostly so far. /// Name: Vivian Meng / Title: Inferring population size for epidemiological purposes with the multiplier method: example of recent advancement / Abstract: The multiplier method is a method to estimate population size (e.g. the number of sex-workers in a city), popular among epidemiologists. However, it relies on the identity that $p_t = N_t/N$, where p_t is the proportion of target population with a certain trait, N_t is the number of people with this trait, and N is the size of the target population. This causes problems in today's world where information on many traits exist in record such that each trait can be used to generate an estimate. I will introduce a recent extension of the multiplier method in which information on multiple traits are used simultaneously to produce one single estimate of population size. I will include examples and some theoretical findings that shed light on how the design of such a study affects the precision of inference.

Links:
http://www.stat.ubc.ca/~yang.liu/jss2014.html