

SRC 2013 SCIENTIFIC PROGRAM

(UCLA June 20–22, 2013)

———— DAY 1: THURSDAY, JUNE 20 ————

—— Thursday, June 20, 8:30-9:00 ——

Welcome and opening remarks (SRC 2013 organizing committee)

—— Thursday, June 20, 9:00-10:00 ——

Plenary Session 1. Chair: Peter Z. Qian (University of Wisconsin)

From Big Data to Big Statistics
John Sall (SAS Institute Inc.)

—— Thursday, June 20, 10:30-12:00 ——

Invited Session 1. Journal of Quality of Technology Invited Session

Organizer and Chair: Brad Jones, JMP Division, SAS Institute Inc.

Definitive Screening Designs with Added Two-Level Categorical Factors
Christopher J. Nachtsheim, University of Minnesota

A GLR Control Chart for Monitoring the Mean Vector of a Multivariate Normal Process
Marion R. Reynolds, Virginia Tech

Invited Session 2. Statistics in Cognition and Vision

Organizer and Chair: Yingnian Wu, UCLA Department of Statistics

Bayesian Analogy with Relational Transformations
Hongjing Lu, UCLA Departments of Psychology and Statistics

Perturb-and-MAP Random Fields: The Interplay between Random Sampling and Optimization,
with Applications in Computer Vision
George Papandreou, UCLA Department of Statistics

How Preschoolers' Reasoning Can Inform Scientific Causal Discovery
Patricia Cheng, UCLA Department of Psychology

Contributed Session 1. Capacity Optimization and Bayesian Methods

Chair: Cecile Low-Kam, Montreal Heart Institute

Nonlinear Mixed Effects Models as a Basis for Capacity Optimization in the Processing Industry:
a Case Study
Bart De Ketelaere, Faculty of Bioscience Engineering, Katholieke Universiteit Leuven, Belgium

Simulation Comparison of EVOP and Simplex-Type Optimization Methods
Koen Rutten, Faculty of Bioscience Engineering, Katholieke Universiteit Leuven, Belgium

A Simple Bayesian Decision-Theoretic Design for Dose Finding Trials
Shenghua (Kelly) Fan, Dept. of Statistics and Biostatistics, California State University, East Bay

Bayesian Family Factor Models for Multiple Outcomes
Qiaolin Chen, Department of Biostatistics, UCLA

— Thursday, June 20, 13:30-15:00 —

Invited Session 3. Designing Efficient Discrete Choice Experiments for Estimating Interactions

Organizer and Chair: Christopher J. Nachtsheim, University of Minnesota

Conjoint Analysis and Discrete Choice Experiments for Quality Improvement
William Li, Carlson School of Management, University of Minnesota

Application of Blocked Fractional Factorial Designs for Discrete Choice Experiments
Jessica Jaynes, Department of Statistics, University of California, Los Angeles

Maximin Model Robust Discrete Choice Experiments
Anna Errore, University of Palermo, Italy, and University of Minnesota

Invited Session 4. Critical Role and Impact of Statistics in Preclinical and Nonclinical Pharmaceutical Research

Organizer and Chair: Lei Zhou, Amgen

Statistical problems in Carcinogenicity studies
Lanju Zhang and Lei Shu, AbbVie*

Discovery and Characterization of Novel Synergistic Combinations Through In-vitro Cell Line Profiling
Cheng Su and Sean Caenepeel (Amgen, Inc.)*

Multiple-response process optimization using process capability: the pharmaceutical industry design space story
John Peterson, GlaxoSmith Kline

Contributed Session 2. Environmental Statistics

Chair: Shenghua (Kelly) Fan, California State University, East Bay

Statistical Analysis and Modeling of Atmospheric Gases
Rebecca Wooten, Department of Mathematics and Statistics, University of South Florida

Spatio-Temporal Statistical Analysis Combining Physical Models and Sensor Measurements
Youngdeok Hwang, IBM, Thomas J. Watson Research Center

Daily Collision Prediction by SARIMAX and GLM Models Based on Temporal and Weather Variables
Yongsheng Chen, Office of Traffic Safety, City of Edmonton, Canada

Refinement of a Method for Identifying Probable Archaeological Sites from Remotely Sensed Data
Li Chen, John Hopkins University

— Thursday, June 20, 15:30-17:00 —

Invited Session 5. Special Session on Experimental Design in Honor of Ching-Shui Cheng

Organizer and Chair: Boxin Tang, Simon Fraser University

Using graphs to find optimal block designs

Rosemary A. Bailey, University of St Andrews

Finding GMA Orthogonal Arrays by Enumeration

Dursun Bulutoglu, Department of Mathematics and Statistics, Air Force Institute of Technology

C.-S. Cheng: Selected Highlights

John Stufken, University of Georgia

Contributed Session 3. Biostatistics and Biomedical Applications

Chair: Nicolas Christou, UCLA Department of Statistics

Predicting Sparse Protein-DNA Binding Landscapes

Matthew Levinson, UCLA Department of Statistics

Swarm Techniques for Finding Bayesian Optimal Designs for Compartmental Models

Yuanyuan Fan, UCLA Department of Biostatistics

Estimating treatment effect size for single-case research: special considerations for participants with autism spectrum disorder

Monica E. Carr, Monash Universtiy, Melbourne, Australia

How Technology Involved in Real Time Intensive Longitudinal Data Collection

Yan Wang, UCLA Department of Biostatistics

———— DAY 2: FRIDAY, JUNE 21 ————

—— Friday, June 21, 9:00-10:00 ——

Plenary Session 2. Chair: Weng Kee Wong (UCLA Department of Biostatistics)

Envelopes and Partial Least Squares Regression

R. Dennis Cook (University of Minnesota)

—— Friday, June 21, 10:30-12:00 ——

Invited Session 6. Technometrics Randy Sitter Invited Session

Organizer: Hugh Chipman, Acadia University

Chair: William Q. Meeker (Iowa State University)

Experimental Design for Engineering Dimensional Analysis

Mark Albrecht (National Marrow Donor Program, Minneapolis, MN)

Co-authors: Christopher Nachtsheim, Thomas Albrecht and Dennis Cook

Discussants: Tim Davis (We Predict Ltd), Bradley Jones (SAS Institute Inc.), Matthew Plumlee (Georgia Tech)

Invited Session 7. Bioinformatics and Data Mining in the Medical Sciences

Organizer: Christina Kitchen, UCLA Department of Biostatistics

Chair: Donatello Telesca, UCLA Department of Biostatistics

A Bayesian regression tree approach to identify the effect of nanoparticles properties on toxicity profiles

Cecile Low-Kam, Montreal Heart Institute

multiGeMS: Multi-Sample SNP Detection Using Genotype Model Selection on High-Throughput Sequencing Data

Xinping Cui, Department of Statistics, UC Riverside

Using the random generalized linear model to predict clinical outcomes based on genomic data

Steve Horvath, Peter Langfelder and Lin Song, UCLA Department of Genetics*

Contributed Session 4. Screening Design, Latin Hypercube Design and Kriging

Chair: Ming-Hung (Jason) Kao, Arizona State University

A Systematic Approach for the Construction of Definitive Screening Designs

Frederick K. H. Phoa, Institute of Statistical Science, Academia Sinica, Taiwan

Optimal Sliced Latin Hypercube Designs

Shan Ba, The Fariborz Maseeh Dept. of Mathematics and Statistics, Portland State University

Sliced Full Factorial-Based Latin Hypercube Designs as a Framework for a Batch Sequential Design Algorithm

Weitao Duan, Dept. of Industrial Engineering and Management Science, Northwestern University

An Information Bound for Kriging

Selden Crary, Newall Street Inc, Palo Alto, CA

— Friday, June 21, 13:30-15:00 —

Invited Session 8. Uncertainty Quantification: Using Complex Models to Aid Statistical Inference

Organizer and Chair: Dave Higdon, Los Alamos National Lab

Engineering-Driven Statistical Adjustment

V. Roshan Joseph and Huan Yan, Georgia Institute of Technology*

Bayesian Experimental Design Using Gaussian Processes

Brian Weaver, Statistical Sciences Group, Los Alamos National Laboratory

Projective Updating of Probabilistic Models

Evangelia Kalligiannaki and Roger Ghanem, University of Southern California*

Invited Session 9. Modern Meta-Heuristic Algorithms For Statistical Applications

Organizer and Chair: Ray-Bing Chen (National Cheng Kung University) and Weng Kee Wong (UCLA)

Constrained Multi-objective Designs for Functional MRI Experiments via A Modified Non-dominated Sorting Genetic Algorithm

Ming-Hung Kao, School of Mathematical & Statistical Sciences, Arizona State University

Optimizing Latin hypercube Designs by Particle Swarm

Ray-Bing Chen, Department of Statistics, National Cheng-Kung University, Tainan, Taiwan

Global Optimization for Nonlinear Mixed-Effects Pharmacokinetic - Pharmacodynamic Models Using Particle Swarm Optimization

Seongho Kim, Department of Bioinformatics and Biostatistics, University of Louisville

Let Darwin and the Bees Help Improve your Designs: Nature Inspired Optimization Techniques in Engineering

Yahya Rahmat-Samii, UCLA Department of Electrical Engineering

Contributed Session 5. Risk Analysis and Reliability

Chair: Shuguang Song, Boeing Company

On a Two-Unit Cold Standby System with Three Modes and Imperfect Switch Considering Preventive Maintenance

Mahmoud Mahmoud, Mathematics Dept, Faculty of Science, Al-Azhar University, Cairo, Egypt

Degradation Data Analysis Using Nonlinear Mixed-effects Models via Shape-restricted Splines

Zhibing Xu, Department of Statistics, Virginia Tech

Reliability Assessments with Restricted Degradation Measurements

Shuen-Lin Jeng, Department of Statistics, National Cheng Kung University

Optimal Design for Accelerated Destructive Degradation Tests

Chien-Tai Lin, Dept. of Mathematics, Tamkang University, New Taipei City, Taiwan

— Friday, June 21, 15:30-17:00 —

Invited Session 10. Experimental Design

Organizer and Chair: Hongquan Xu, UCLA Department of Statistics

Nearly Orthogonal Space-Filling Designs Uniform in Two-Dimensional Projections

Brad Jones, JMP Division, SAS Institute Inc.

A new framework on calibration for computer models: estimation and convergence properties

C. F. Jeff Wu, Georgia Institute of Technology

Design of experiments for Bayesian model discrimination

Dave Woods, Southampton Statistical Sciences Research Institute, University of Southampton, UK

Contributed Session 6. Machine Learning: Methods and Applications

Chair: Qing Zhou, UCLA Department of Statistics

Feature Selection by Scheduled Elimination

Adrian Barbu and Yiyuan She, Department of Statistics, Florida State University*

Casual Search, Bootstrap Aggregation and Bayesian Networks: An Application to the Consumer Packaged Goods Industry

Irina Kukuyeva, Director, Ipsos Science Centre

Extension of Sliced Inverse Regression for High Dimensional but Low Sample Size Data

Jingyi Zhu, Department of Statistics, Purdue University

Simultaneous Envelopes for Multivariate Linear Regression

Xin Zhang, School of Statistics, University of Minnesota

— Friday, June 21, 18:00-20:00, Banquet —

Banquet talk

Xiaoli Meng (Harvard University)

—— Saturday, June 22, 8:30-10:00 ——

Invited Session 11. New Statistical Procedures for Analyzing Big Data

Organizer: Runze Li, Pennsylvania State University

Chair: Peter Z. Qian (University of Wisconsin)

Estimating Single Index Models in High Dimensions

Peter Radchenko, University of Southern California

The Analysis of Group fMRI Data Using L1, L2, and Mixed-Type Penalties

Ronghui “Lily” Xu, University of California at San Diego

High-Dimensional Sparse Additive Hazards Regression

Jinchi Lv, University of Southern California

Invited Session 12. Applied Bayesian Design of Experiments

Organizer and Chair: Dave Woods, University of Southampton

Optimal Bayesian design using Gaussian process emulators

Antony Overstall, University of St Andrews, UK

A D-optimal design for estimation of parameters of an exponential-linear growth curve of nanostructures

Tirthankar Dasgupta, Harvard University

A particle filter for Bayesian sequential design

James McGree, Queensland University of Technology, Australia

Contributed Session 7. Fractional Factorial Designs

Chair: Frederick K. H. Phoa, Academia Sinica

A Potential Outcomes Perspective of the Analysis of Unreplicated Factorial Designs

Valeria Espinosa Mateos, Department of Statistics, Harvard University

Some Results on Conditional Main Effect Analysis

Heng Su, Georgia Tech

Semifoldover Two-level Regular Blocked Factorial Designs

Po Yang, Department of Statistics, University of Manitoba Winnipeg

Interesting Insights in Indicators: Indicator Functions and the Algebra of the Linear-Quadratic Parameterization

Arman Sabbaghi, Department of Statistics, Harvard University

— Saturday, June 22, 10:30-12:00 —

Invited Session 13. Reliability and SPC Applications

Organizer and Chair: Yili Hong, Virginia Tech

Estimating Failure-Time Distributions and Predicting Field Failures with Censored Data and an Unknown Retirement Times

William Q. Meeker, Department of Statistics, Iowa State University

Estimation of Warranty Repair Demand Considering New Sales and Failed-but-not-reported Phenomena

Haitao Liao, Department of Systems and Industrial Engineering, University of Arizona

Nonparametric CUSUM Control Charts for Periodic SPC Applications

Daniel R. Jeske, Department of Statistics, University of California, Riverside

Invited Session 14. Computer Experiments

Organizer and Chair: Roshan Joseph Vengazhiyil (Georgia Tech)

Assessing the chance of a satellite collision using a computational propagator model

Earl Lawrence, Dave Higdon (Los Alamos National Laboratory), Mike Shoemaker*

Statistical Emulation of Materials Science Computer Experiments

Shane Reese, Brigham Young University

OEM for Big Data

Peter Z. Qian, University of Wisconsin

Accelerating Inference by Changing Designs: Sparse Grid Designs

Matthew Plumlee, Georgia Institute of Technology

Contributed Session 8. High Throughput Screening and Optimal Designs

Chair: Jessica Jaynes, UCLA Department of Statistics

Plate Designs in High Throughput Screening Experiments

Xiangui Qu, Department of Mathematics and Statistics, Oakland University

Robust Analysis of High Throughput Screening (HTS) Assay Data

Changwon Lim, Department of Mathematics and Statistics, Loyola University Chicago

Optimal Design for the M/M/1 Queue

B.M. Parker, University of Southampton, UK

Finding D-optimal design for Multi-toxicant Poisson Model via Particle Swarm Optimization

Jiaheng Qiu, Department of Biostatistics, UCLA