

40th Symposium on the Interface of Computing Science and Statistics 2008 (Interface 2008)

Risk : Reality

Abstracts

**Durham, North Carolina, USA
21-24 May 2008**

ISBN: 978-1-62276-717-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2008) by the Interface Foundation of North America
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the Interface Foundation of North America
at the address below.

Interface Foundation of North America
PO Box 7460
Fairfax Station, VA 22039

Phone: (703) 993-1212
Fax: (703) 993-1700

interface@galaxy.gmu.edu

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

INTERFACE 2008 Program

Technical Talks

THURSDAY 22 May

Thursday 10:30 am – 12:15 pm

Modeling of Extreme Events and Analysis of Risk

Organizers and Chairs: Dipak Dey & David Rios-Insua

Room 106

Elijah Gaioni	U Conn	<i>Semiparametric Functional Estimation using Quantile-based Prior Elicitation</i> 1
Sourish Das	U Conn	<i>Hurricane Activity in Context of Changing Environment</i> 1
Jesus Rios	SAMSI&Aalborg U	<i>Risk Analysis for Auctions</i> 1

Enhancing Knowledge and Assessing Risk through Analysis of Massive Data

Organizer: Karen Kafadar

Chair: Ginger Davis

Room 107

Ginger Davis	UVA	<i>Statistical Methods for Detecting Computer Attacks from Streaming Internet Data</i> 2
Amy Braverman	JPL/Cal Tech	<i>Massive Data Set Analysis for NASA's Atmospheric Infrared Sounder</i> 2
Michael Trosset	Indiana U	<i>What Kind of Knowledge Does Locally Linear Embedding Extract?</i> 3

Streaming Data Analysis

Organizer and Chair: Edward Wegman

Room 102

Bill Szewczyk	NSA	<i>Data Analysis on Streams</i> N/A
Werner Stuetzle	Washington	<i>Using Labeled Data to Evaluate Change Detectors in a Multivariate Streaming Environment</i> N/A
Shen-Shyang Ho	JPL/ Cal Tech	<i>Change Detection in Data Streams by Testing Exchangeability</i> 3

Contributed Paper Session 1

Room 105

Zhiliang Ma	Johns Hopkins	<i>Combining Dissimilarity Representations in Embedding Product Space</i> 4
Adam Cardinal-Stakenas	Johns Hopkins	<i>Comparing Dissimilarity Representations of Disparate Information</i> 4
Joel Bernanke	Boston U	<i>Network Mapping of large data sets</i> 5

LUNCH BREAK: 12:15 pm – 1:45 pm

Thursday

1:45 pm – 3:30 pm

Probabilistic Models in Risk Assessment

Organizer and Chair: David Banks

Room 102

Mehmet Sahinoglu	Troy U	<i>Security Risk for Computer Systems</i> 6
Alyson Wilson	LANL	<i>Bayesian Reliability Analysis</i> 6
David Banks	Duke U	<i>Adversarial Risk Analysis</i> 6

Air Pollution Risk Assessment: from Research to Regulation

Organizer and Chair: Amy Nail

Room 106

Allen Lefohn	ASL & Associates	<i>Realistic Biological and Exposure/Dose Relationships: How They Modify Perceived Human Health & Ecological Risk</i> N/A
Roger Peng	Johns Hopkins U	<i>Statistical Methods for Assessing the Health Risks of Particulate Matter Components</i> N/A
Yongku Kim	SAMSI	<i>How Changing the Ozone Standard Might Affect Respiratory Mortality</i> 7

New Developments in Machine Learning and Statistical Modeling for Massive Data

Organizer and Chair: Helen Zhang

Room 107

Jerry Zhu	U Wisconsin	<i>Online Semi-Supervised Learning</i> N/A
Yufeng Liu	UNC	<i>Robust Large-Margin Classifiers</i> N/A
Howard Bondell	NCSU	<i>Simultaneous Feature Selection and Structure Identification for ANOVA Models</i> N/A

Contributed Paper Session 2

Room 105

Roy E. Welsch	MIT	<i>Robust Risk: Using Robust Methods to Improve Investment Performance</i> 9
Bonnie K. Ray	IBM	<i>Challenges in Integrated Risk Management for the Enterprise</i> 9
Leming Qu	Boise State U	<i>Copula Density Estimation by Total Variation Penalized with Constraints</i> 9

Thursday

3:45 pm – 5:30 pm

Multivariate Extremes

Organizer and Chair: Richard Smith

Room 106

Richard Smith	UNC	<i>Multivariate Extremes and Risk</i> 10
Jan Heffernan	Lancaster U	<i>A Conditional Approach to Modeling Multivariate Extremes</i> 10
Dan Cooley	Colorado State	<i>Prediction for Max-stable Processes via an Approximated Conditional</i> 10

Model-based Risk Assessment in Life Science

Organizer and Chair: Lutz Edler

Room 102

C. Portier	NIEHS	<i>Finding the Right Path: Using Structurally-Enhanced Pathway Enrichment Analysis to Identify Targets for High-Throughput Screening</i> 11
Lutz Edler	German Cancer Research Center	<i>Data Gaps and Needs in Model-based Risk Assessment</i> N/A
Matthew Wheeler	UNC	<i>Dose Response Uncertainty and Model Averaging</i> N/A

Recent Developments in Machine Learning and Classification - to appear in the *Journal of Computational and Graphical Statistics*

Organizer: David van Dyk

Chair: Michael Trosset

Room 107

George Michailidis	U Michigan	<i>An Iterative Algorithm for Extending Learners to a Semi-supervised Setting</i> 12
Tong Tong Wu	U Maryland	<i>An MM Algorithm for Multicategory Vertex Discriminant Analysis</i> 12
Han-Ming (Hank) Wu	Tamkang U	<i>Kernel Sliced Inverse Regression with Applications to Classification</i> 12

FRIDAY 23 May

Friday 8:30 am – 10:15 am

Statistics and Modern Image Analysis, I

Organizer: Steve Marron

Chair: Haipeng Shen

Room 106

S.M. Pizer	UNC	<i>M-reps, Curved Feature Space, Bayesian Segmentation</i> 13
R. E. Broadhurst	UNC	<i>Quantile Functions for Texture Analysis and M-rep Segmentation</i> 13
Suman Sen	UNC	<i>Manifold SVM for M-rep Data</i> 13

SNP Analysis Methods and Software

Organizer and Chair: Stan Young

Room 107

Danyu Lin	UNC	<i>HapStat</i> N/A
Kejun (Jack) Liu	OmicSoft	<i>Analysis and Visualization of SNP Data</i> N/A
Dmitri Zaykin	SAS	<i>Whole-genome SNP Analysis</i> N/A

Text Mining Applications

Organizers and Chairs: Edward Wegman & Yasmin Said

Room 102

Andris Abakuks	U London-Birbeck	<i>The Synoptic Gospels Problem and the Trips-Link</i> 15
Walid Sharabati	American U	<i>The Relationship between Prophets and Chapters in the Quran: A Two-Mode Social Network Model</i> N/A

Contributed Paper Session 3

Room 105

Dusan Maletic	Rutgers U	<i>Bayesian Methodology for Precision Astrometry of Highly Undersampled Images</i> 15
Amy Nail	N.C. State U	<i>Quantifying Local Creation and Regional Transport Using a Hierarchical Space-time Model of Ozone as a Function of Observed NO_x, a Latent Space-time VOC Process, Emissions, and Meteorology</i> 16
Mariana Toma-Drane	USC	<i>Post-Chernobyl Psychological Effects on Individuals in Belarus</i> 16

Friday 10:30 am – 12:15 pm

Statistics and Modern Image Analysis, II

Organizer: Steve Marron

Chair: Steve Pizer

Room 106

Brad Davis	Kitware & UNC	<i>Smoothing over Diffeomorphisms</i> N/A
Hongtu Zhu	UNC	<i>Intrinsic Regression Model for Positive Definite Matrices</i> 18
Haipeng Shen	UNC	<i>Supervised Singular Value Decomposition for Independent Component Analysis of fMRI</i> N/A

Statistical and Computational Issues in Analyzing Sensor Networks

Organizer and Chair: Alan Gelfand

Room 102

George Michailidis	U Michigan	<i>Robust Target Detection & Localization in Wireless Sensor Networks</i> 19
Carol Y. Lin	CDC	<i>Statistical Issues in Designing an Optimal Detection System with Multiple Heterogeneous Sensors</i> 19
Soumendra Lahiri	Texas A&M	<i>Analysis of Microsensor Networks from a Statistical Perspective</i> 19

Text Data Analysis

Organizer and Chair: Jeffrey Solka

Room 107

Elizabeth Hohman	NSWC	<i>Generalization of the Vector Space Model for a Streaming Corpus of Text Documents</i> 20
Kendall Giles	VCU	<i>Interactive Text Mining with Iterative Denoising</i> 20
Avory Bryant	NSWC	<i>Cross Corpus Discovery via Nearest Neighbor Change-point Analysis</i> 21

Contributed Paper Session 4

Room 105

Zhenyu Liu	GWU	<i>A Triangle Test for Equality of Distribution Functions in High Dimensions</i> 21
Ori Rosen	UTEP	<i>A Bayesian Model for Multivariate Functional Data</i> 21
Shih-Chuan Cheng	Creighton U	<i>Confidence Estimation of the Parameter Involving in the Distribution of the Total Time on Test for Censored Data</i> 22
E. James Harner	WVU	<i>LifeStats: An Interactive Environment for Teaching Statistics</i> 22

LUNCH BREAK: 12:15 pm – 1:45 -pm

Friday 1:45 pm – 3:30 pm

Statistics and Evolutionary Biology, I

Organizer and Chair: Haipeng Shen

Room 107

Joel Kingsolver	UNC	<i>Evolutionary Analyses of Function-valued Traits</i> N/A
Travis Gaydos	UNC	<i>Quantification of Curves' Variation and Simplicity to Find Genetic Constraints</i> N/A
Brian O'Meara	National Evolutionary Synthesis Center	<i>Extending Models of Character Coevolution</i> N/A

Sensor Networks and Statistics - New Researchers Session

Organizer and Chair: George Michailidis

Room 102

Sheela Nair	UCLA	<i>Fault Detection for Embedded Networked Sensing</i> 24
Natallia Katenka	U Michigan	<i>A Cost-efficient Approach to Wireless Sensor Network Design</i> 25
Gavino Puggioni	Duke U	<i>Analyzing Space-time Sensor Network Data under Suppression and Failure in Transmission</i> 25

Contributed Paper Session 5

Room 106

Vincent A. Cicirello	R. Stockton	<i>Statistically Modeling the Performance of a Multistart Randomized Heuristic Algorithm</i> 26
Eric Tassone	Google	<i>Keeping a Search Engine Index Fresh: Risk Versus Optimality Trade-offs in Estimating Frequency of Change in Web Pages</i> 26

Friday 3:45 pm – 5:30 pm

Statistics and Evolutionary Biology, II

Organizer and Chair: Haipeng Shen

Room 107

Christina Burch	UNC	<i>Distribution of Mutation Effects and Adaptation in an RNA Virus</i> N/A
Mihee Lee	UNC	<i>Deconvolution and Sieve Estimation of Mutation Effect Distribution</i> N/A
Paul Magwene	Duke U	<i>Modularity in Biological Systems: Statistical Challenges and Evolutionary Insights</i> N/A

Assessing Health Risk from Complex Data

Organizer and Chair: David Dunson

Room 102

Joseph Ibrahim	UNC	<i>A Bayesian Hidden Markov Model for Motif Discovery through Joint Modeling of Genomic Sequence and ChIP-chip Data</i> 27
Jason Fine	UNC	<i>Analysis of Left-truncated Semi-competing Risks Data with Application to Disease Registries</i> 28
Lianming Wang	NIEHS	<i>Semiparametric Bayes Modeling of Onset and Progression from Current Status Data</i> 28

Integration of Disparate Types of Information

Organizer: Wendy Martinez

Chair: Jeffrey Solka

Room 106

Carey Priebe	Johns Hopkins U	<i>Disparate Information Fusion: On the Exploitation of Multiple Disparate Dissimilarities</i> N/A
Brent Castle	Indiana U	<i>Combining Disparate Information by Nonmetric Multidimensional Scaling</i> 29
Jeffrey Solka	NSWC	<i>Disparate Information Fusion on Images and Text</i> N/A

SATURDAY 24 May

Saturday

8:30 am – 10:15 am

Spatial Risk Mapping: Prediction and Change Detection

Organizer and Chair: Michael Porter

Room 106

Jason Dalton	SPADAC	<i>Space-time Forecasting of Extreme Events in Complex Environments</i> N/A
Ronald D. Fricker, Jr.	Naval Postgraduate School	<i>Using the Repeated Two-sample Rank Procedure for Detecting Anomalies in Space and Time</i> 30
Michael Porter	NCSU	<i>A Martingale Methodology for the Quick Identification of Point Process Anomalies</i> 30

Contributed Paper Session 6

Room 107

Andrejus Parfionovas	Utah State U	<i>Classification Trees with Oblique Splits for Multidimensional Datasets</i> 31
Rebecca Nugent	CMU	<i>Clustering with Confidence: A Binning Approach</i> 31
Joran Elias	U Montana	<i>Making Tree Ensembles More Robust to Noisy Data</i> 32

Saturday

10:30 am – 12:15 pm

Change Detection in Random Graphs

Organizer and Chair: David Marchette

Room 106

David Marchette
Youngser Park
Elizabeth Beer

NSWC *Detecting Activity Changes in Graphs* N/A
Johns Hopkins U *Scan Statistics in Hypergraphs* N/A
Johns Hopkins U *Torus Graph Inference for Detection of Localized Activity* N/A

Risk of Reaching False Conclusions

Organizer and Chair: Stan Young

Room 107

Stan Young
Robert Obenchain
Patrick Ryan

NISS *The Problem of Observational Studies* N/A
SoftRx *A Complete Illustration of Local Control for Observational Studies* N/A
GlaxoSmithKline *Exploring the Effects of Medicines:
Managing Risk across Multiple Outcomes* N/A
GlaxoSmithKline *Discussant* N/A