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POSTER PRESENTATIONS

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"Comparison of a Non-Linear, 1D Numerical Simulation with In-Vitro Measurements in a Replica Model of the Arterial System"

James Crooks
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"Interpolating Stochastic Model Output"

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"Experimental Design and Analysis Using Nested Factors with Applications in Machining"

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"Optimal Selection of Robust Parameter Designs when some of the Control-by-Noise Interactions are Important"

In robust parameter design, both control factors and noise factors are studied, and the objective is to choose the settings of control factors that are insensitive to the noise factors. The information concerning control-by-noise interactions is particularly useful for achieving this objective. In this paper, we propose and study a method for selecting

the optimal robust parameter designs when some of the control-by-noise interactions are important. We then discuss how to search for the best designs according to this method and present some results for designs of 8 and 16 runs.

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"A Structural Equation Method for Modeling Data Center Thermal Distribution"

Temperature modeling is a key in designing and running a reliable data center with many computer components operating and generating heat constantly. How different configurations affect the data center thermal distribution is largely unknown because the physical thermal process is complex and depends on many factors. Designed experiment is widely used for studying data center thermal distribution, which tends to produce multivariate responses. A statistical method based on latent variables is introduced in this work for analyzing multivariate temperature readings produced by this experiment. A two-stage estimation procedure is developed for the proposed model by making use of the ordinary least square estimation and a pseudo-likelihood method. The proposed methodology is illustrated with an example for modeling the thermal distribution of a non-raised floor data center.
Joint work with Yasuo Amemiya at IBM T. J. Watson Research Center.

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"Pyroclastlic Flow Modeling via Levy Processes"

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"Blind Kriging: a New Method for Developing Metamodels"

Kriging is a useful method for developing metamodels for product design optimization. The most popular kriging method, known as ordinary kriging, uses a constant mean in the model. In this article, a modified kriging method is proposed, which has an unknown mean model. Therefore it is called blind kriging. The unknown mean model is identified from experimental data using a Bayesian variable selection technique. Many examples are presented which show remarkable improvement in prediction using blind kriging over ordinary kriging. Moreover, blind kriging predictor is easier to interpret and seems to be more robust to misspecification in the correlation parameters.
(Joint work with Ying Hung and Agus Sudjianto).