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Joint MUMS Program Transition - SPUQ Workshop
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SPEAKER/ABSTRACT

Aaron Danielson, Simon Fraser University
"Some Strategies to Quantify Uncertainty for Extrapolation in Physical Systems"

Abstract:
Although we often told not to do it, statistical scientists frequently predict the value of outcome measures of physical systems at input points far the observed data. Since predictions are made in new regions of the input space, a statistical theory cannot dictate optimal rules for measures of uncertainty associated with extrapolation. This talk presents several solutions based on simple principles. The solutions are illustrated via the analysis of data generated by dropping spheres of varying radii and masses from different heights. Some of the techniques apply to more complex physical systems. The efficacy of these techniques is demonstrated using data (experimental and simulated) of the level of complexity physical scientist frequently face. Scientists should tailor these techniques to fit the needs of a particular application.