

Wharton Department of Statistics and Data Science

Lawrence D. Brown Distinguished Lecture Series



James O. Berger

Department of Statistical Science
Duke University

- Wednesday, September 8, 12:00-1:30 PM
Location: G60 Jon M. Huntsman Hall

Emulation of computer models with massive output, with application to assessing the hazards from pyroclastic flows

Often computer models yield massive output; e.g., a weather model will yield the predicted temperature over a huge grid of points in space and time. Emulation of a computer model is the process of finding an approximation to the computer model that is much faster to run than the computer model itself (which can often take hours or days for a single run). Many successful emulation approaches are statistical in nature. We discuss one such approach – the construction of independent parallel emulators at each grid point – with the emulators being developed through Gaussian processes. The computational simplicity with which this approach can be implemented will be highlighted and the surprising fact that one can ignore spatial structure in the massive output will be explained. All results will be illustrated with a computer model of volcanic pyroclastic flow, the goal being the prediction of hazard probabilities near active volcanoes.

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- Thursday, September 9, 3:30-5:00 PM
Location: G60 Jon M. Huntsman Hall

Four types of frequentism and their interplay with Bayesianism

The majority of statisticians and scientists who use statistics declare themselves to be frequentists, but they typically mean very different things by this declaration. The purpose of this talk is to highlight the major different types of frequentists and to indicate which are compatible with Bayesianism and which are not. The focus is on evaluating common statistical procedures from the different perspectives, primarily from three unconditional frequentist perspectives.

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- Friday, September 10, 1:30-3:00 PM
Location: G60 Jon M. Huntsman

The conditional frequentist principle and data dependent error probabilities

The majority of statisticians and scientists who use statistics declare themselves to be frequentists, but they typically mean very different things by this declaration. This talk is a continuation of Talk 2 on the subject, with the focus shifting to the conditional frequentist perspective, rather than the unconditional frequentist perspective; it is not necessary to have been at the previous talk to follow this one. Larry Brown's significant work in this area will be highlighted.