



**THE UNIVERSITY OF GEORGIA  
DEPARTMENT OF STATISTICS**

*Colloquium Series*

**Dr. Kary Myers**

Los Alamos National Lab

**Thursday, November 16, 2017**

3:30pm in room 306, Statistics Building

**Partitioning a Large Simulation as It Runs**

As computer simulations continue to grow in size and complexity, they present a particularly challenging class of big data problems. Many application areas are moving toward exascale computing systems, systems that perform a billion billion FLOPS (Floating-point Operations Per Second). Simulations at this scale can generate output that exceeds both the storage capacity and the bandwidth available for transfer to storage, making post-processing and analysis challenging. One approach is to embed some analyses in the simulation while the simulation is running --- a strategy often called *in situ* analysis --- to reduce the need for transfer to storage. Another strategy is to save only a reduced set of time steps rather than the full simulation. Typically the selected time steps are evenly spaced, where the spacing can be defined by the budget for storage and transfer. Our work combines both of these ideas to introduce an online *in situ* method for identifying a reduced set of time steps of the simulation to save. Our approach significantly reduces the data transfer and storage requirements, and it provides improved fidelity to the simulation to facilitate post-processing and reconstruction. We illustrate the method using a computer simulation that supported NASA's 2009 Lunar Crater Observation and Sensing Satellite mission.

**Statistics in the National Laboratories**

**Lunch Discussion**

**12:00pm Cohen Room, Statistics Building**

Dr. Myers will discuss what it's like to be a statistician at Los Alamos National Laboratory and at some of the other national labs run by the Department of Energy. She will minimize her prepared content in order to allow plenty of time for questions and discussion.

For more information, please contact us at:

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