**THE UNIVERSITY OF GEORGIA**
**DEPARTMENT OF STATISTICS**

# *Industry Day*

## Dr. Agus Sudjianto

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**Thursday, March 30, 2023**
**4:00 PM, Room 204, Caldwell Building**

### Machine Learning for High-Risk Applications in Banking

Renowned statistician George Box once famously stated, "All models are wrong, but some are useful." In a world where machine learning increasingly automates important decisions about our lives, the consequences of model failures can be catastrophic. It's critical to take deliberate steps to mitigate risk and avoid unintended harm.

Evaluating the conceptual soundness of machine learning models, which includes explainability and interpretability, can be challenging due to their over-parameterization. There have been many attempts in the field of so-called Explainable Artificial Intelligence (XAI), which are typically done by employing auxiliary tools, so-called post-hoc explainers, to explain black box models. Though useful, these tools have their weaknesses due to their approximation nature and are not adequate for high-risk applications. I will discuss how we design interpretability for complex machine learning models, including the use of Functional ANOVA as a constraint to impose interpretability.

Rigorous and comprehensive model testing is a key requirement for high-risk applications, and standard model performance testing is insufficient as models in the real world live in non-IID and changing environments. Model testing must be able to uncover model weaknesses, including their robustness against input corruption, their ability to provide reliable predictions, and their performance resilience under distribution shifts. In this talk, I will present our practice today and the technical challenges we face.

### Lunch Discussion - 12:00pm in Room 434, Cohen Room, Brooks Hall

This presentation will discuss the role of Quant/Data Scientist in banking. I will discuss various applications of modeling in banking and how the job is shaped by the adoption of machine learning. I will discuss what skills and behaviors that students can prepare to have successful careers. This will be an informal conversation about possible career paths with time for interactions and questions.

For more information, please contact us at:
Phone: 706.542.5232 E-Mail: stat@uga.edu
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