

Department of Experimental Statistics

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"AI-Driven Business Innovation: Harnessing Bayesian Multilevel
Models and Probabilistic Programming at the Intersection of
Statistics, Decision Theory, and Game Theory"

February 2, 2024 at 1:30 p.m. to 2:30 p.m.

E134 Howe-Russell-Kniffen

This presentation delves into the innovative integration of artificial intelligence (AI) with advanced statistical methods, decision theory, and game theory, emphasizing their application in business for enhanced profitability and strategic advantage. The focus is on Bayesian multilevel models and their pivotal role in powering AI systems alongside LLMs and other methods. Attendees will gain insights into how these models effectively manage complex data structures and their importance in AI applications. Additionally, the talk will shed light on probabilistic programming, illustrating its role as a critical link that unites statistical modeling with machine learning in business contexts. Moreover, the synergy of decision theory and game theory with AI and Bayesian methodologies will be discussed, underscoring how these combined approaches inform optimal decision-making and strategy development in competitive business environments. Practical examples and real-world case studies will be presented to demonstrate the transformative potential of these integrated methods in shaping the future of data-driven business strategies.