



Announcing

A Seminar Presentation

on Thursday

April 4, 2019

at 3.00 pm in

Maxcy 203

at The University of New Haven

Belief Function Theory: Monte Carlo Methods and Application to Stock Markets

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Abstract: Belief function theory, also known as Dempster-Shafer theory or evidence theory, gives a general framework for quantifying, representing, and managing uncertainty, and it is widely used in several applications from artificial intelligence to accounting. The belief function theory provides tools to combine several sources' opinions (belief functions), among which, Dempster's rule of combination is the most commonly used.

The main drawback of using Dempster's rule to combine belief functions is its computational complexity, which limits the application of Dempster's rule to small number of belief functions. We introduce a family of new Monte Carlo and quasi-Monte Carlo algorithms aimed at approximating Dempster's rule of combination. Then, we present numerical results to show the superiority of the new methods over the existing ones.

The algorithms are then used to implement some stock investment strategies based on Dempster-Shafer theory. We will introduce a new strategy, and apply it to the U.S. stock market over a certain period of time. Numerical results suggest the strategies based on the belief function theory outperform the S&P 500 index, with our new strategy giving the best returns.

Further Information

For further information, please contact Dr. Yasanthi Kottegoda at the Department of Mathematics and Physics, Office: Maxcy 315, 203-932-1206, YKottegoda@newhaven.edu.