Department of Statistics and Data Science
THE CHINESE UNIVERSITY OF HONG KONG

SEMINAR

DEPARTMENT OF STATISTICS AND DATA SCIENCE
THE CHINESE UNIVERSITY OF HONG KONG

Bayesian Analysis of Stochastic Volatility Model Quantile Regression using Asymmetric Laplace Error via Uniform Scale Mixtures

INVITED SPEAKER

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Associate Professor
Business School
The University of Sydney

TIME

Oct 23rd, 2026 (Friday) · 2:00pm – 3:00pm

VENUE

LSB LT2 · CUHK

ABSTRACT

This talk proposes a scale mixture of uniforms (SMU) representation for the asymmetric Laplace distribution (ALD). The SMU representation serves as a data augmentation technique that simplifies Gibbs sampling in Bayesian Markov chain Monte Carlo (MCMC) estimation. We consider a stochastic volatility (SV) model with ALD-distributed errors and show that the resulting full conditional distributions have closed-form expressions, leading to an efficient Gibbs sampling algorithm. The ALD is also widely used for estimating the coefficients of quantile regression models. Motivated by this connection, we further develop a quantile SV model by fixing the skewness parameter of the ALD at a specified quantile level. Simulation studies demonstrate that the proposed Bayesian methodology performs well for both the SV and quantile SV models. In the empirical application, we analyse stock market index returns from Australia, Japan, Hong Kong, Thailand, and the United Kingdom, and examine the impact of the SP 500 Index on these returns.