The Hong Kong University of Science and Technology

Department of Information Systems, Business Statistics and Operations Management

Statistics Seminar Announcement

Statistical Inference for Rough Volatility

by

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Date : Thursday, 9 February 2023
Time : 10:30 am - 11:45 am
Venue : FINA Conference Room, LSK 5047

Abstract:

In recent years, there has been substantive empirical evidence that stochastic volatility is rough. In other words, the local behavior of stochastic volatility appears to be much more irregular than Brownian motion and resembles that of a fractional Brownian motion with Hurst parameter $H < 0.5$. In this talk, we discuss nonparametric inference for H based on two different data sources: high-frequency return data and option panels. In the return-based approach, we derive a consistent and asymptotically mixed normal estimator of H that is rate-optimal in a minimax sense. In the option-based approach, we show that rough volatility can be statistically separated from jumps with arbitrary degree of activity.

This talk is based on joint works with Marc Hoffmann, Yanghui Liu, Mathieu Rosenbaum, Grégoire Szymanski and Viktor Todorov.

Bio:

Carsten Chong is an term assistant professor in the Department of Statistics at Columbia University. He is broadly interested in the statistical analysis of stochastic processes arising in finance and natural sciences. His current research focuses on the statistics of high-frequency data and volatility modeling. Before joining Columbia, Carsten was a postdoctoral researcher at EPFL in Lausanne, Switzerland. He received his PhD in 2015 from the Department of Mathematics at the Technical University of Munich, Germany.