

**CENTRE FOR SYSTEMS INFORMATICS ENGINEERING
POSTDOC ASSOCIATES AND STUDENTS SEMINAR (CSIE PASS)****Compact Dynamic Inner
Canonical Correlation Analysis
for Nonstationary Dynamic
Feature Extraction and
Prediction****Mr Junhao CHEN**Ph.D. Student, School of Data Science
City University of Hong Kong

Date: 5 June 2023

Time: 3:00pm - 3:45pm

Zoom meeting ID: 919 4226 1377

Seminar link: <https://cityu.zoom.us/j/91942261377>**Abstract**

In this paper, a novel compact dynamic inner canonical correlation analysis (DiCCA) algorithm with autoregressive integrated moving average (ARIMA) inner models is proposed to better capture the latent dynamics of high dimensional time series. It can extract latent factors that capture the underlying dynamics of the data and model them using the ARIMA structure, which has fewer parameters and more flexibility than the potentially high-order AR structure used in the original DiCCA algorithm. The proposed algorithm can also handle nonstationary latent factors by explicitly modeling the unit roots. The algorithm integrates the extraction and the modeling of a latent factor in one step, resulting in a consistent inner and outer model. The algorithm is applied to an industrial dataset and shows better performance than the original DiCCA algorithm.

Biography

Junhao Chen is a joint Ph.D. student with the School of Data Science, City University of Hong Kong. He received the B.Eng. degree in mechatronic engineering in 2019 from the School of Mechanical Engineering, Zhejiang University, Hangzhou, China, where he is currently working toward the Ph.D. degree in control science and engineering with the College of Control Science and Engineering. His current research interests include industrial process monitoring and fault diagnosis.