

Seminar Announcement

Speaker: Arun K. Tangirala

Affiliation: Department of Chemical Engineering, IIT Madras

Date: 6th October, 2017

Time: 2:00pm - 3:00pm

Venue: Indian Statistical Institute, 110 Nelson Manickam Road, Aminjikai, Chennai.

Title: Data-driven reconstruction of causal graphs for multivariate stationary processes

Abstract: Network or graphical representations of multivariate processes have assumed prominence in the recent era of multivariate time-series analysis. The primary support for this imminent paradigm shift stems from rapid developments in the reconstruction of causal (directed) networks that mainly draws on the rich ideas in econometrics, social sciences and neuroscience. These combined developments have, in turn, propelled and nucleated the ideas of causality analysis in data-driven process engineering over the last decade. The first part of this talk presents an overview of the developments in causality analysis centred around the notion of Granger causality (GC). The second part of the talk presents results from our research in this field. A systematic methodology for hierarchical reconstruction of Granger-causal graphs using spectral measures of GC is presented. Finally, two novel scalar correlation function measures for vector time-series modelling of multivariate processes towards efficient estimation of spectral GC measures are presented. Simulation and real-life case studies are portrayed as illustrations of the associated theoretical concepts.

Tea/Snacks will be served after the talk.

Please forward this notice to anyone who you think may be interested.

Regards,

Seminar Coordinator.