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Optimal Decision Fusion under Order Effect

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Date and Time: Friday, 8 November 2019, 4:30-5:30pm
Venue: Room B6605, City University of Hong Kong
Reception starts at 4:15pm
(Language: English)

Abstract

In this talk, we will consider an optimal decision fusion problem with a group of human decision makers when an order effect is present. The order effect refers to situations wherein the process of decision making by a human is affected by order of decisions. In our set-up, all human decision makers receive the same data, which is generated by a common but unknown hypothesis. The decision making process is modeled by noncommutative probabilistic models of the data and their relation to the hypothesis. The use of non-commutative probability models is motivated by recent psychological studies which indicate that these non-commutative probability models are more suitable for capturing the order effect in human decision making, compared with the classical probability model. We will derive the structure of the optimal decision fusion rule in different scenarios. The performance of the optimal rules will be numerically evaluated and compared with the optimal fusion rule derived using a classical probability model.

If time permits, we will also discuss a game-theoretic approach to the design of attack-resilient consensus dynamics.

About the Speaker

Ehsan Nekouei is an Assistant Professor at the Department of Electrical Engineering, the City University of Hong Kong. He received Ph.D. degree from The University of Melbourne in 2013, and held postdoctoral positions at KTH Royal Institute of Technology from 2017 to 2019 and at The University of Melbourne from 2014 to 2016.

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