



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

Strategic Information Transmission
by
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Date : 7 April, 2017 (Friday)
Time : 11:00am – 12:00noon
Venue : Room 1009, William M.W. Mong Engineering Building
The Chinese University of Hong Kong

Abstract

Strategic information transmission refers to a variation (and a substantial one) of the standard paradigm of information transmission in communication (design of an encoder and a decoder in unison to minimize some distortion measure), where now the encoder and the decoder have (intentionally) misaligned objectives. This leads to a non-cooperative game with a dynamic (non-classical) information structure, where one can adopt as a solution concept either the Nash or the Stackelberg equilibrium. This talk will introduce this class of problems, which have been of interest to multiple communities, including economics, information theory, communication, signal processing, and control, since the early 1980s, having picked up considerable steam very recently. As an overview of the topic, both old and new results will be presented, with one of the highlights (and perhaps a surprising element) being that there appears to be a major difference between the structures of the encoders and the decoders under Nash and Stackelberg equilibria, even when the channel is Gaussian and the (misaligned) distortion measures are quadratic. Extensions to multi-stage scenarios, information transmission problems with an element of deception, and SIT problems with privacy constraints will also be discussed.

Biography

Tamer Başar has been with the University of Illinois at Urbana-Champaign since 1981, where he currently holds the academic positions of Swanlund Endowed Chair; Center for Advanced Study Professor of Electrical and Computer Engineering; Professor, Coordinated Science Laboratory; Professor, Information Trust Institute; and Affiliate Professor, Mechanical Sciences and Engineering. Since 2014, he also holds the administrative position of Director of the Center for Advanced Study, and prior to that he was the Director of the Beckman Institute for Advanced Science and Technology. He received his BSEE degree from Robert College (Istanbul), and MS, MPhil, and Ph.D. degrees from Yale University (New Haven).

Dr. Başar is a member of the US National Academy of Engineering and the European Academy of Sciences; Fellow of IEEE, IFAC, and SIAM; a past president of the IEEE Control Systems Society (CSS), the founding (and past) president of the International Society of Dynamic Games (ISDG), and a past president of the American Automatic Control Council (AACC). He has received several awards and recognitions over the years, including the highest awards of IEEE CSS, IFAC, AACC, and ISDG, the IEEE Control Systems Technical Field Award, Medal of Science of Turkey, and a number of international honorary doctorates and professorships. He has over 800 publications in systems, control, communications, optimization, networks, and dynamic games, including books on non-cooperative dynamic game theory, robust control, network security, wireless and communication networks, and stochastic networks. He is editor of several book series.

**** ALL ARE WELCOME ****