



THE CHINESE UNIVERSITY OF HONG KONG

Department of Information Engineering

Faculty of Engineering

Distinguished Lecture



Behavioral Game Theory for Interacting Agents in Societal Systems

by

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Abstract

Equilibrium behavior in systems of interacting agents where each agent has its own objectives is traditionally studied using game theory. Well-known equilibrium concepts include Nash equilibrium and correlated equilibrium. Classical game theory is based on modeling the agents as maximizers of an expected utility.

Empirical research on human behavior has demonstrated that humans are not well modeled as utility maximizers. An attractive theory that appears to be capable of capturing many of the peculiarities of human behavior, and which includes expected utility theory as a special case, is the cumulative prospect theory (CPT) of Kahneman and Tversky.

In the doctoral thesis work of Soham Phade, which we will give an exposition of in this talk, we have aimed at developing versions of some of the core results in classical game theory in the context where the agents have CPT preferences.

We will discuss the relationship between Nash and correlated equilibria in this context, develop an analog of the calibrated learning theory justification of correlated equilibria for CPT agents, and build a theory of CPT mechanism design for implementing social choice functions. The potential applications of some of these techniques in communication networking and the design of social networks will also be discussed via examples.

The talk will be structured to be accessible without any prior background in game theory or CPT.

Biography



Venkat Anantharam is Professor at the EECS department at UC Berkeley. He received his B.Tech in Electrical Engineering from IIT Madras in 1980. He received an MS in EE, an MA in mathematics, a C.Phil in Mathematics, and a Ph.D. in EE - all from UC Berkeley in 1982, 1983, 1984 and 1986, respectively. From 1986 to 1994 he was on the faculty of the School of EE at Cornell University, before moving to UC Berkeley. He is a winner of the 1987 Presidential Young Investigator award from National Science Foundation (US), the 1998 Prize Paper award of the IEEE Info. Theory Society (with S. Verdu), and the 2000 Stephen O. Rice Prize Paper award of the IEEE Comm. Theory Soc. (with N. Mckeown and J. Walrand). He is a recipient of the 2008 Distinguished Alumnus Award from IIT Madras. He is a Fellow of the IEEE.

****ALL ARE WELCOME****

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