IE Decision Systems Engineering
Fall '21 Seminar Series

Revisiting Exploration versus Exploitation: Multi-Armed Bandits and Adaptive Control

Friday, September 3, 2021, 12:00PM (AZ time)
Via Zoom: https://asu.zoom.us/j/7274630791

We consider the central problem of exploration versus exploitation that lies at the heart of several dynamic learning problems. We revisit the problem of regret in adaptive control and examine it in the light of recent interest in solving large scale bandit problems. For bandit problems, we present a family of schemes that admits simple index policies whose regret performance appears to be near the best apparently currently available, and at low computational complexity per decision. [Joint work with Ping-Chun Hsieh, Yu-Heng Hung, Xi Liu, Akshay Mete, Rahul Singh, Anirban Bhattacharya and Le Xie].

Bio

P. R. Kumar is a Regents Professor, a University Distinguished Professor, Holder of the O'Donnell Foundation Chair I, and Professor in the Department of Electrical and Computer Engineering at Texas A&M University, and Franklin W. Woeltge Professor Emeritus in the Department of Electrical and Computer Engineering at University of Illinois, Urbana-Champaign. He is an Honorary Professor at IIT Hyderabad.

His current focus includes 5G, Wireless Networks, Cybersecurity, Cyberphysical Systems, Privacy, Unmanned Aerial System Traffic Management, Reinforcement Learning, Machine Learning, and Power Systems.

He obtained his B. Tech from the Indian Institute of Technology, Madras in 1973, and M.S. and D.Sc. from Washington University, St. Louis in 1975 and 1977, respectively. He was a faculty member in the Department of Mathematics at the University of Maryland Baltimore County from 1977-84, and a faculty member in the Department of Electrical and Computer Engineering and the Coordinated Science Laboratory at the Univ of Illinois, Urbana-Champaign from 1985-2011. Since 2011 he has been a faculty member in the Department of Electrical and Computer Engineering at Texas A&M University.

He received the IEEE Field Award for Control Systems, the Donald P. Eckman Award of the American Automatic Control Council, the Fred W. Ellersick Prize of the IEEE Communications Society, the Outstanding Contribution Award of ACM SIGMOBILE, the Infocom Achievement Award, the ACM SIGMOBILE Test-of-Time Paper Award, and the COMSNETS Outstanding Contribution Award. He is a Fellow of IEEE and ACM. He was awarded a Doctor Honoris Causa by ETH, Zurich. He is a member of the U.S. National Academy of Engineering, The World Academy of Sciences, the Indian National Academy of Engineering, and The Academy of Medicine, Engineering & Science of Texas. He was awarded a Distinguished Alumnus Award from IIT Madras, the Alumni Achievement Award from Washington University, St. Louis, and the Daniel C. Drucker Eminent Faculty Award from the University of Illinois, Urbana-Champaign.

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