THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

Introduction to Blockchain and Applications of Game Theory
By
Prof. Dusit Niyato
School of Computer Science and Engineering
Nanyang Technological University, Singapore

Date : 4th April, 2019 (Thu)
Time : 4:00pm – 5:00pm
Venue : Room 801, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract

Blockchain has emerged as a new ledger technology for data and transactions management. This decentralized ledger technology relies on consensus protocols and incentive mechanisms among a number of participants, i.e., miners and users, to achieve high data security and integrity. However, the participants are rational and will act according to their interests. As such, game theory appears to be a suitable tool to analyze and optimize the blockchain networks. In this talk, we will present the basics of game theory and review some typical game models such as non-cooperative game, hierarchical game, and evolutionary game that are adopted in blockchain. Then, the game formulations for mining pool management, computing resource allocation, and risk management in blockchain networks will be presented. Some research directions will be also discussed.

Biography

Dusit Niyato is currently a professor in the School of Computer Science and Engineering and, by courtesy, School of Physical & Mathematical Sciences, at the Nanyang Technological University, Singapore. He received B.E. from King Mongkuk's Institute of Technology Ladkrabang (KMITL), Thailand in 1999 and Ph.D. in Electrical and Computer Engineering from the University of Manitoba, Canada in 2008. He has published more than 380 technical papers in the area of wireless and mobile networking, and is an inventor of four US and German patents. He has authored four books including "Game Theory in Wireless and Communication Networks: Theory, Models, and Applications" with Cambridge University Press. He won the Best Young Researcher Award of IEEE Communications Society (ComSoc) Asia Pacific (AP) and The 2011 IEEE Communications Society Fred W. Ellersick Prize Paper Award. Currently, he is serving as a senior editor of IEEE Wireless Communications Letter, an area editor of IEEE Transactions on Wireless Communications (Radio Management and Multiple Access), an area editor of IEEE Communications Surveys and Tutorials (Network and Service Management and Green Communication), an editor of IEEE Transactions on Communications, an associate editor of IEEE Transactions on Mobile Computing, IEEE Transactions on Vehicular Technology, and IEEE Transactions on Cognitive Communications and Networking. He was a guest editor of IEEE Journal on Selected Areas on Communications. He was a Distinguished Lecturer of the IEEE Communications Society for 2016-2017. He was named the 2017, 2018 highly cited researcher in computer science. He is a Fellow of IEEE.

** ALL ARE WELCOME **

Host: Professor Jianwei HUANG (Tel: 3943-8353, Email: jianwei@ie.cuhk.edu.hk)
Enquiries: Information Engineering Dept., CUHK (Tel.: 3943-8385)