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THE CHINESE UNIVERSITY OF HONG KONG

Department of Information Engineering

Seminar

Available Capacity Analysis of Multi-Consecutive-Channel Wireless Networks

By

Prof. Dongyu QIU

Concordia University, Canada

Date : 13 June 2024 (Thursday)

Time : 10:30am – 11:30am

Venue : Rm 801, Ho Sin Hang Engineering Building, CUHK

Abstract

In a wireless network where users request multiple consecutive channels, a new arrival may be blocked even if the network has enough idle channels but these idle channels are not consecutive. An iterative process was proposed to find the conditional probability of having maximum x number of consecutive idle channels under the condition of n number of total channels and m number of busy channels. With the result of the conditional probability, a multi-dimensional Markov chain was applied to find the steady state probability distribution of busy channels. The proposed model was validated by numerical and simulation results. Lastly, an approximate one-dimensional Markov chain was also proposed to reduce the complexity of the multi-dimensional solution.

Biography

Dongyu Qiu received the B.S. and M.S. degrees in Electronic Engineering from Tsinghua University, Beijing, China in 1994 and 1997 respectively and the Ph.D. degree in Electrical Engineering from Purdue University, West Lafayette, Indiana, USA, in 2003.

He is currently an Associate Professor in the Department of Electrical and Computer Engineering, Concordia University, Montreal, Quebec, Canada. His research interests are in the areas of peer-to-peer networks, cloud computing, queueing analysis, network security, and wireless networks.

**** ALL ARE WELCOME ****

Host: Prof. LIN Xiaojun (Tel: 3943-5587, Email: xjlin@ie.cuhk.edu.hk)

Enquiries: Information Engineering Dept., CUHK (Tel.: 3943-8385)