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Advances in Variable Digital Filters and Applications

Prof. H. K. Kwan

Department of Electrical and Computer Engineering, University of Windsor, Ontario, Canada

Date and Time: Friday, 17 October 2008, 4:30pm – 5:30pm

Venue: Room **CD634**, Hong Kong Polytechnic University

Reception starts at 4:15pm

(Language: **English**)

Abstract

This talk presents an overview of the recent advances and applications of variable cutoff frequency digital filters and variable fractional delay digital filters with a focus on recursive structures and their analysis, design, and implementation techniques. A digital filter forms a core embedded system widely employed in diverse fields of signal processing applications including multimedia systems, communications, biomedical systems, consumer electronics, automobile systems, industrial control systems, instrumentations, and others. In particular, variable cutoff frequency digital filters have applications in audio tonal control, digital tuners, software radio, digital hearing aids, sigma-delta modulators, multimedia signal enhancement and correction, and others; and in addition variable fractional delay digital filters find applications in speech coding, sound synthesis, acoustic echo cancellation, video motion compensation, sampling rate conversion, digital modem synchronization, navigation, chaotic communications, biomedical signal detection and separation, and others.

About the Speaker

Prof. H. K. Kwan received his Ph.D. in Electrical Engineering (Signal Processing) from Imperial College, London in 1981. His previous experiences include working as a design engineer in electronics and computer memory industry in Hong Kong; and serving as a faculty member in the Department of Electronic Engineering in The Hong Kong Polytechnic, and then in the Department of Electrical and Electronic Engineering in The University of Hong Kong; he subsequently joined the University of Windsor, Ontario, Canada and holds the rank of Professor in Electrical and Computer Engineering since 1989. The area of his research interests is digital filter theory and intelligent techniques for signal processing. He has served in a variety of capacities both inside and outside the University, and has been and remains active in the Digital Signal Processing Technical Committee and the Neural Systems and Applications Technical Committee of the IEEE Circuits and Systems Society. Prof. Kwan is a licensed Professional Engineer (Ontario) and a Fellow of the Institution of Engineering and Technology (UK).