ENGLISH LANGUAGE FACULTY OF ENGINEERING

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Advances in fractional-order modelling and its applications

19.06.2019, 11:30 am, Conference Hall, Library of TU-Sofia

Abstract: *It is desired to know a system or process behavior more accurately using a mathematical model. In recent decades, engineers have increasingly adopted a fractional-order model to represent some realistic conditions more accurately. It has been found from recent literature that new developments have impelled research into extensions of the classical identification techniques to advanced fields of science and engineering. This talk will cover the recent methods in the field and other related challenges to implement the fractional-order derivatives. The comprehensive discussion would help the interested researchers to grasp the concept of the fractional-order modelling and can facilitate for future investigations. I will also talk about my recent published work on fractional-order time delay system modeling using Haar wavelets. It allows the estimation of the implicit time delay parameter together with other model parameters by utilizing new delay operational matrix. The efficacy of the approach is verified on various integer and non-integer (fractional) order systems in simulation and also demonstrated on the real-time process control temperature system. I like to briefly discuss about other applications such as supercapacitors' modellings and fractional order filters.*

About assoc. prof. Mehta: Assoc. Prof. Mehta is an electronics engineer (PhD) and academic/researcher/inventor in area of system identification, modeling and embedded devices. He a senior member of IEEE and secretary of IEEE Fiji subsection, working in regional university in Oceana namely The University of the South Pacific, Fiji as Associate Professor in Engineering. His current research focuses on process identification, applied fractional calculus (AFC) for modeling, fractional-order filter design on reconfigurable devices like FPAA and various robotics applications for medical and industrial automation. His passion is also to develop low cost educational devices or tools for Special Need Children.