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Recent Researches in Circuits, Communications and Signal Processing

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Proceedings of 7th WSEAS International Conference on Circuits, Systems, Signal and Telecommunications (CSST '13)

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Plenary Lecture 1

Telecommunications Engineering Course Design

Associate Professor Savitri Bevinakoppa
Director of Engineering
Melbourne Institute of Technology (MIT)
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Abstract: Engineering is the discipline and profession of capturing and applying mathematical, technical and scientific knowledge to research, plan, design, invent and implement real world cutting edge technology using appropriate materials, devices, procedures and systems to achieve desired objectives efficiently.
Perception of the telecommunications engineering is important in the current economy. By studying telecommunication engineering, students will understand the theory and practice of significant advancements and developments in modern technology. Telecommunication engineers design, develop, test and maintain telecommunications systems. They are one of the driving forces behind recent, significant growth in areas such as the Internet, mobile telephones and other modern wired and wireless communications systems. This talk enlightens telecommunication course design approach for under graduate and post graduate levels. Main subjects in telecommunications engineering courses include: Digital systems, Overview of digital communication, Telecommunication system engineering, Telecommunication modeling and simulation, and Mobile and satellite communication systems. This talk also covers core body of telecommunications knowledge, course design and development based on current industry trends and feedback received from professional engineers.

Brief Biography of the Speaker: Associate Professor Savitri Bevinakoppa completed her Bachelor of Engineering (Electronics and Communication) in 1989 and Doctor of Philosophy (PhD) at Victoria University, Melbourne in 1996, writing her thesis on “Still Image Compression on Parallel Computer Architectures”. Savitri has more than 22 years of teaching and research experience in Engineering and Information Technology (IT) disciplines, and has also worked in industry as a manager for more than 10 years. She has demonstrated continuing scholarly and professional involvement in both learning & teaching and research, publishing a number of books and research papers nationally and internationally. She has obtained several industry grants and supervised many research students and research associates. She has chaired a number of conferences in multi-disciplinary areas and edited their proceedings. Currently she is working as a Director of Engineering at Melbourne Institute of Technology, Melbourne, Australia.

Plenary Lecture 2

Statistical Detection of Selfish Behavior in IEEE 802.11 Wireless Networks

Professor Tarek Saadawi
Center for Information Networking & Telecommunications (CINT)
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City University of New York, City College
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Abstract: The presentation presents a novel technique to detect the selfish behavior applied by malicious nodes in mesh wireless Ad-hoc networks employing the widely used IEEE 802.11 DCF protocols. Malicious nodes manipulate the IEEE 802.11 DCF standards to illegally gain extra throughput and increase the probability of having a successful packet transmission on the expense of the honest nodes that follow the protocol standards. The theoretical network throughput will be derived using two dimensional Markov Chain to determine the network capacity. Results obtained by the theoretical computations will be validated by network simulation to determine the baseline for the maximum achievable throughput in the network under fair conditions where all nodes follow the standards. An approach is proposed to enable all the nodes in IEEE 802.11 network with a mechanism to detect and identify the malicious nodes in a distributed environment. Results are presented to prove the effectiveness and feasibility of the proposed algorithm.

Brief Biography of the Speaker: Dr Saadawi has been with the Electrical Engineering Department, The City University of New York, CityCollege, since 1980, where he currently directs the Center of Information Networking and Telecommunications (CINT) at CCNY. His current research interests are wireless networks, multimedia networks, AD-HOC networks and network security. He has published extensively in the area of telecommunications networks. He is a co-Editor of Cyber Infrastructure Protection, published by Strategic Studies Institute, 2010, lead-author of a text book on telecommunications, and the lead author of Egypt Telecommunications Infrastructure Master Plan, funded by USAID.
Dr Saadawi a former Chairman of IEEE Computer Society of New York City He has received IEEE Region 1 Award. Dr Saadawi has been a member of the Consortium Management Committee of ARL Consortium on Telecommunication (2001- 2011), and has been on US Dept of Commerce delegation to the Algerian Government addressing Rural Communications, April 2007.
Dr Saadawi received his PhD from the University of Maryland , College Park, USA the MSc and Bsc From Cairo University, Egypt.