

Webinar on Next Generation IoT

The Second Edition

IEEE Communication Society

Technical Committee Communications Software: Special Interest Group on "NFV and SDN Technologies"



Prof. **Laurence T. Yang**
FCAE, FEIC, MAE, FIEEE, FIET
Department of Computer Science
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Title: Cyber-Physical-Social Systems: System Design and Data Analytics

Abstract: This talk will present our latest research on the following two directions of Cyber-Physical-Social Systems (CPSS): 1. the effective and efficient approaches for CPSS modeling and general system design automation methods, as well as methods analyzing and/or improving their power and energy, security, trust and reliability features; 2. the Big Data-as-a-Service framework, which includes data representation, dimensionality reduction, incremental and distributed processing, security and privacy, deep learning, clustering, prediction and proactive services, aiming at representing and processing big data generated from CPSS, providing more valued smart services for human and refining the previously designed CPSS.

Corresponding case studies in some applications such as smart traffics will be shown to demonstrate the feasibility and flexibility of the proposed system design methodology and analytic framework.

Title: Blockchains with AI for Risk Management in IoT

Abstract: Blockchain has found numerous applications in Fintech, Supply chains, and contracts because it is an ideal distributed consensus where all nodes agree on the validity of transactions in a block without needing a central trusted party. The consensus is binary - agree or disagree - True or False. In this era of big data, we need to move blockchains beyond data storage to provide knowledge. In the real world, there are many situations in which various sensors may not fully agree, and their measurements may be probabilistic, leading to probabilistic agreements. In this talk, Prof. Jain will present his recent extensions using AI that allow blockchains to be used for decisions that may not be binary. These extensions enable blockchains to be used for risk management when the group sizes are large. In particular, Prof. Jain will describe numerous use cases of this idea. Such situations frequently arise in security applications.



Prof. **Raj Jain**
Barbara J. and Jerome R. Cox, Jr., Professor
Computer Science and Engineering,
Washington University in St. Louis

Title: Machine Learning for Multi-Access Edge Computing and Autonomous Driving

Abstract: The last decade has witnessed an unprecedented improvement and prosperity of machine learning techniques and applications. Such rapid development is heavily dependent on the tremendous available data generated by the ever-increasing number of mobile devices, like the Internet of Vehicles. To relieve the computation pressure and reduce the latency, multi-access edge computing has emerged as a promising paradigm for real-time mobile services. One of the typical edge computing-assisted applications is autonomous driving, which is computation-intensive, memory-consuming, and latency-sensitive. In this talk, we will discuss two main topics, i.e., the edge resource reservation for autonomous vehicles and low latency edge computing assisted high definition map updating mechanism.



Prof. **Zhu Han**
Fellow IEEE, Fellow AAAS
John and Rebecca Moores Professor
University of Houston
Houston, TX

Principal Host: **Prof. Sudip Misra, IIT Kharagpur, India**
Co-Host: **Dr. Arijit Roy, University of Luxembourg, Luxembourg**
Co-Host: **Dr. Ayan Mondal, IIT Indore, India**

More details can be found [here](#)
Date: **December 10, 2021**
Time: **7:30 PM - 9:30 PM, Indian Time (IST)**



All participants need to pre-register by 5 PM (IST), December 09, 2021 by filling-up the following form: [Registration Link](#)
Zoom sign-in details will be shared with the registered participants using the email address provided in the registration form.