



THE LONG ISLAND CHAPTER OF THE IEEE COMMUNICATIONS SOCIETY

is pleased to host **Distinguished Lecturer** Mihaela van der Schaar
Chancellor's Professor of Electrical Engineering at University of California, Los Angeles

presenting on

Design Principles for Networked Communities

October 25, 2011, at Polytechnic Institute of NYU (LI Graduate Center), 105 Maxess Rd, Melville, NY
Pizza served at 6 PM. Lecture will begin at 6:30 PM. Q&A will follow the lecture.

Background:

In the past decades, we have witnessed an abundance of research dedicated to building more efficient networks - wireless sensors networks, mobile networks, vehicular networks, cognitive radio networks. These networks were formed by obedient devices interacting with each other and conforming with a prescribed protocol. The challenges to forming these networks were information decentralization, (unknown) dynamics, poor physical connectivity. Many of these challenges are now solved or in the process of being solved. The new network frontier involves smart agents (people, intelligent devices, or people interacting with these devices) connecting to each other based on their self-interest.

When the network communities are composed of compliant machines (wireless nodes, routers, mobile phones etc.), network utility maximization (NUM) and other well-known control and optimization methods can be used to achieve efficient designs. However, when the network communities are composed of intelligent and self-interested agents (people or smart software agents acting on their behalf), such methods are not effective and efficiency is much more difficult to achieve because the interests of the individual agents may be in conflict with that of the network designer.

Goals of this lecture:

In view of the noted challenges in network communities, this talk (i) proposes a new generation of ideas and technologies for designing the interactions between self-interested, learning agents in networked communities (social networks, service networks, online labor markets, crowdsourcing, P2P networks); (ii) describes design principles to achieve efficient outcomes in networks based on the use of incentives (rewards and punishments); and (iii) discusses mechanisms based on indirect reciprocation (social norms and token exchanges).

Speaker Bio:

Mihaela van der Schaar is Chancellor's Professor of Electrical Engineering at University of California, Los Angeles. Her research interests include dynamic multi-user networks and system designs, online learning, network economics and game theory, multimedia networking, communication, processing, and systems, and multimedia stream mining. She is an IEEE Fellow, a Distinguished Lecturer of the Communications Society for 2011-2012, the Editor in Chief of IEEE Transactions on Multimedia and a member of the Editorial Board of the IEEE Journal on Selected Topics in Signal Processing. She received an NSF CAREER Award (2004), the Best Paper Award from IEEE Transactions on Circuits and Systems for Video Technology (2005), the Okawa Foundation Award (2006), the IBM Faculty Award (2005, 2007, 2008), the Most Cited Paper Award from EURASIP: Image Communications Journal (2006), the Gamenets Conference Best Paper Award (2011) and the 2011 IEEE Circuits and Systems Society Darlington Award Best Paper Award. She received three ISO awards for her contributions to the MPEG video compression and streaming international standardization activities, and holds 33 granted US patents. For more information about her research visit: <http://medianetlab.ee.ucla.edu/>

*Admission is free but registration is required. We are **APPROVED** for 0.2 CEUs for the seminar, and there is a \$25 fee for CEUs. For registration and directions go to www.ieee.li, click on the *Calendar* link, and then click on the registration link for this event.*

Lecture coordinator: Dave Bomzer, IEEE Communications Society LI Chapter Chair; tdbomzer@daypitney.com

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