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Multicast beamforming and admission control for UMTS-LTE and 802.16e

Predavač

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Abstract:

Wireless multicasting is becoming increasingly important for efficient distribution of streaming media and location-aware services to mobile and hand-held devices (e.g., UMTS-LTE), but also network management and software updates over cellular and indoor/outdoor wireless networks (e.g., 802.11/16). Multicast beamforming was recently proposed as a means of exploiting the broadcast nature of the wireless medium to boost spectral efficiency and meet Quality of Service (QoS) requirements. In this talk we will highlight recent developments in QoS multicast beamforming and joint beamforming and admission control for wireless multicast networks. While optimal designs are NP-hard, we show that it is possible to develop efficient and effective solutions via convex approximation. The idea is to approximate a non-convex NP-hard problem by a suitable convex problem which is close to the original one; the solution of the convex problem then guides the search for a good approximate solution of the original problem. The basic approach is broadly applicable to a range of tough engineering design problems, and thus of general interest to an engineering audience.

About speaker:

Nikos Sidiropoulos (SM) received the Ph.D. degree in Electrical Engineering, University of Maryland (1992). He served as Assistant Professor, University of Virginia; Associate Professor, University of Minnesota; and Professor, Technical University of Crete, since 2002.

Prof. Sidiropoulos has published over 50 journal papers, 85 conference papers, five book chapters and one edited book. He has been a consultant to Globespan and General Dynamics, and has co-authored three patents. He received the U.S. NSF Young Faculty CAREER Award (1998) and two IEEE SPS Best Paper Awards (2001 and 2007).

Prof. Sidiropoulos' volunteer activities include Member, Vice-Chair and Chair, SPS Signal Processing for Communications Technical Committee (2000-present, 2005-06 and 2007-08, respectively); Member, SPS Sensor Array and Multichannel Technical Committee (2004-present); Associate Editor, IEEE Transactions on Signal Processing (2000-06) and IEEE Signal Processing Letters (2000-02); Technical Program Chair, IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP) (2005); Technical Program Co-Chair, IEEE Sensor Array and Multi-Channel Signal Processing Workshop (SAM) (2008); General Co-Chair, IEEE International Workshop on Computational Advances in Multi-Channel Sensor Array Processing (CAMSAP) (2007); and on the Program Committee of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2011 in Prague.

Branimir Reljin (SM), IEEE SCG CAS-SP Chair