Department of Electrical and Computer Engineering

Title: *«Caching in Large-Scale Cellular Networks with D2D Assistance»*

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Abstract:
Wireless edge caching has been proposed as a solution to the high proportion of video traffic. The main idea is to store the most frequently requested files, based on a given distribution, to nodes in the network such as base stations (BSs), thus dealing with a user's request from a closer distance. This results in traffic offloading as well as reduced playback latency which is an important requirement for future video demands. This talk presents a caching policy for cellular networks with device to device (D2D) communications, where both BSs and distributed devices have caching capabilities. The proposed policy allows each device to cache files according to the user's preferences while the most requested files are cached in the BSs. In this way, a three-level hierarchical connectivity scheme is employed, where a file request is satisfied with priority order by i) the closest paired device, ii) the closest paired BS, iii) the backhaul network. The performance of the considered scheme is studied from a large-scale point of view and our results show the benefits of both the proposed caching policy and the assistance of D2D communications against conventional cellular architectures.

Biography:
Eleni Demarchou received the B.Sc. degree in electrical engineering from University of Cyprus, Cyprus, in 2014, and the M.Sc. degree in wireless communications from University of Southampton, UK, in 2015. She joined KIOS centre for intelligent systems and networks as a research assistant in the mobile communications and networking laboratory, in 2015. She is currently a Ph.D. student in electrical engineering at the University of Cyprus, Cyprus. Her research interests focus on wireless communications where she is working on the design of cache-enabled cellular systems considering advanced physical layer techniques.