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IEEE Journal on Selected Areas in Communications
QoE-Aware Wireless Multimedia Systems

With the evolution towards new multimedia systems and services, user requirements are not limited to requirements on connectivity: users now expect services to be delivered according to their demands on quality. At the same time, audiovisual systems are becoming more and more complex and new possibilities of presenting content are available, including augmented reality and immersive environments. However, for wireless systems the possible limitations due to the characteristics of the transmission channel and of the devices can result in perceivable impairments, originated in the different steps of the value chain from content production to display techniques, that influence the user's perception of quality. In recent years, the concept of *quality of service* (QoS) has been extended to the new concept of *quality of experience* (QoE), as the first only focuses on the network performance (e.g. packet loss, delay and jitter) without a direct link to the perceived quality, whereas the QoE reflects the overall experience of the consumer accessing and using the provided service. Experience is user- and context-dependent (involving considerations about subjective multimedia quality and users' expectation based on the cost they paid for the service, on their location, on the type of service, on the convenience of using the service, etc.). Subjective QoE evaluation is however time consuming, costly and not suitable for use in closed loop adaptation, hence there is a growing demand for objective QoE evaluation and control: objective, rather than subjective, QoE evaluation enables user centric design of novel multimedia systems, including wireless systems based on recent standards, such as WiMAX and 3GPP LTE, through an optimal use of the available resources based on such objective utility index.

This special issue invites submissions on the latest research on QoE-aware wireless multimedia systems, including relevant applications in new areas. We particularly welcome papers reporting original research on QoE-aware systems exploiting and analyzing QoE information at the different layers of the communication protocol stack, addressing multiple and new media sources (audio, images, 2D/3D/multiview video,…), and proposing QoE-scalable transmission approaches. We seek original completed and unpublished work not currently under review by any other journal/magazine. Topics of interest include (but are not limited to):

(i) Architectures and Protocols for QoE-driven media streaming
- Wireless architectures for QoE-driven media streaming
- Protocols and mechanisms for wireless media streaming
- In-network media stream management and processing
- Cross-layer signalling for QoE-aware wireless communications
- QoE-aware security and rights management in wireless media streaming

(ii) System optimization based on QoE criteria
- QoE-aware error control
- QoE-aware cross-layer design
- QoE-aware MAC layer strategies
- QoE-driven adaptation and control mechanisms for existing and next generation wireless systems/devices
- Media synchronization, playback, and buffer management
- QoS to QoE mapping

(iii) QoE assessment and monitoring methodologies
- Objective QoE metrics for wireless image, graphics, video, animation and audiovisual transmission
- No reference or reduced reference QoE models for mobile multimedia applications/services
- Online and offline QoE monitoring schemes and QoE measurement from live mobile/wireless networks
- QoE metrics for 3D Video streaming and multimodal applications
- QoE metrics and system design for novel applications (e.g., augmented reality, cloud-based online gaming).

Prospective authors should prepare their submissions in accordance with the rules specified in the 'Information for Authors' section of the JSAC guidelines (http://www.jsac.ucsd.edu/Guidelines/info.html). Papers should be submitted through EDAS (http://www.edas.info). Prior to submitting their papers for review, authors should make sure that they understand and agree to adhere to the over-length page charge policy presented in the JSAC guidelines.

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Preliminary review results:	December 15, 2011	Expected publication date:	3rd Quarter 2012

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