

# Editorial: Mobile Multimedia Communications

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## Editorial:

Successfully deploying multimedia services and applications in mobile environments requires adopting an interdisciplinary approach where multimedia, networking and physical layer issues are addressed jointly. Content feature analysis and coding, media access control, multimedia flow and error control, cross-layer optimization, Quality of Experience (QoE), media cloud, media data processing as well as mobility management and security protocols are research challenges that need to be carefully examined when designing new mobile media architectures. We also need to put a great effort in designing applications that take into account the way the user perceives the overall quality of provided services.

Within this scope, this special issue is intended to provide a unique international forum for researchers from industry and academia, working on multimedia coding, security, mobile communications and networking fields, to study new technologies,

applications and standards. Original unpublished contributions are solicited that can improve the knowledge and practice in the integrated design of efficient technologies and the relevant provision of advanced mobile multimedia applications.

This special issue features six selected papers with high quality. The first article, “A Survey of Verifiable Computation”, authored by Yu et al., provided a thorough survey on the current state of art of verifiable computation in cloud computing to verify the correctness of data processing at the cloud in order to enhance its trustworthiness, especially for encrypted data processing. This survey gives a comprehensive review on this research field, compares the pros and cons of existing work based on performance evaluation metrics, highlights open research issues and indicates future research directions.

The second article titled “LTE-EMU: A High Fidelity LTE Cellar Network Testbed for Mobile Video Streaming” presented the design and implementation of an end-to-end network testbed for LTE cellar network called LTE-EMU in order to provide a convinced testbed for LTE cellar network. This testbed can reproduce the actual end-to-end transmission characteristics observed in real LTE networks by combining methods of both simulation and emulation.

In the next article with the title “Haze Removal via Edge Weighted Pixel-to-Patch Fusion”, the authors proposed an efficient method for haze removal under the guidance of depth edges in order to accurately estimate the transmission map using strong priors or assumptions. In this method, a depth edge prior is applied to obtain the depth edges from a hazy image, and then a pixel-to-patch fusion scheme weighted by the depth edges is employed to estimate the transmission directly, which can preserve the sharp discontinuity at depth edges but smooth the surface texture in the rest regions of a transmission map.

In order to explore user readiness and adoption of sensing technologies to change user behaviors, the fourth article titled “EHR: A Sensing Technology Readiness Model for Lifestyle

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Changes” developed a model called EHR (e-health readiness) through user survey to investigate the relationship between user habits, perceived healthiness and beliefs towards sensing technologies, and how these factors influence user readiness to use sensing technologies to manage their wellness. The study result is helpful in designing future sensing technologies for behavior change.

For solving the problem that using static trust thresholds for misbehavior detection may result in high false positives, low malicious node detection rate, and network partitioning in Mobile Ad Hoc Networks (MANETs), the fifth article, “Isolating Misbehaving Nodes in MANETs with an Adaptive Trust Threshold Strategy” proposed an interesting Adaptive Trust Threshold (ATT) strategy and evaluated its performance with regard to robustness, energy efficiency, package delivery ratio and malicious node detection accuracy by comparing it with non-ATT schemes.

Device-to-Device (D2D) communication is a promising technology for the next generation mobile communication networks and wireless systems (5G). The last article titled “UAKA-D2D: Universal Authentication and Key Agreement Protocol in D2D Communications” proposed a universal authentication and key agreement protocol for securing D2D communications with the support on user roaming and inter-operator operations. By adopting Diffie-Hellman Key Exchange (DHKE) algorithm and employing message authentication code, the protocol achieves privacy-preserving session key generation and mutual authentication between D2D users.

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