

## CONTEXT-AWARE NETWORKING AND COMMUNICATIONS: PART 2



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The general definition of context-aware communications and networking (CACN) was provided in the June 2014 Guest Editorial of Part 1 of this Feature Topic. Briefly speaking, there are two classes of context awareness: person context awareness and object context awareness. Context awareness may be implemented using quite different aspects under different environments and conditions, and at different layers. The relevant research topics in this area include context-aware network architectures, protocols, services and applications, context-aware green communications and computing networking, context-aware modeling and analysis methods, context-aware security approaches, context-aware distributed systems, context awareness in the Internet of Things, context-aware semantic networking, context-aware data storage and cloud computing, context-aware recommender systems, context awareness in smart spaces, context awareness in multimedia content distribution, adaptive and context-based multimodal interaction, location-aware services and context-aware location tracking, context-aware messaging, addressing, and routing, mobile phone sensing, personal awareness in smart environments, social context understanding and social interaction among peers, context-aware social networks, urban awareness for communications and networking, social agents and avatars, virtual humans for communications and networking, and standardization and regulation of context-aware information networking and communications.

The August 2014 issue of this Feature Topic (Part 2)

includes six articles that address a number of issues among those listed above studied within industry and academia.

The article “Large-Scale Immersive Video Conferencing by Altering Video Quality and Distribution Based on the Virtual Context,” by F. Safaei, P. Pourashraf, and D. Franklin, makes some initial efforts to solve the scalability issues of video conference systems to support a large number of participants through introducing an immersive video conferencing (IVC) system that combines the best attributes of video conferencing and multi-user virtual environments. In the IVC system, each participant with a virtual context defined by the relevant perspective and perception may be represented by an avatar with reduced video quality and roam freely in a 3-dimensional space, which would emulate the real life characteristics of a large gathering under reduced bandwidth requirements.

The article “Smart Health: A Context-Aware Health Paradigm within Smart Cities,” by A. Solanas, C. Patsakis, M. Conti, *et al.*, introduces the concept, and discusses the main challenges and opportunities of, smart health (s-Health), which is the context-aware complement of mobile health (m-Health) within smart cities. The authors consider s-Health as an augmentation of m-Health with the sensing capabilities of smart cities; thus, s-Health is more constrained than m-Health due to the additional city-centric features.

The article “Living on the Edge: The Role of Proactive Caching in 5G Wireless Networks,” by E. Bastug, M. Benis, and M. Debbah, investigates whether or not peak traf-

fic demands could be substantially reduced by proactively serving predictable user demands via caching at base stations and user devices. This will be achieved via exploiting predictive capabilities and recent developments in storage, context awareness, and social networks.

The article “PRECISE: Privacy-Aware Recommender Based on Context Information for Cloud Service Environments,” by A. H. Celdran, M. G. Perez, F. J. G. Clemente, and G. M. Perez, discusses a privacy-preserving solution offering context-aware services based on location in mobile cloud computing (MCC), and proposes a middleware called Privacy-Aware Recommender Based on Context Information for Cloud Service Environments (PRECISE).

The article “Context-Aware Service Composition and Delivery in NGSONs over SDN,” by F. Paganelli, M. Ulema, and B. Martini, explains the support of context-aware service composition in the next generation service overlay network (NGSON) and how NGSONs could explore network virtualization mechanisms and programmable traffic steering capabilities. This article also proposes an architectural model for an NGSON that leverages these novel network service control capabilities.

The article “Context-Aware Vehicular Cyber-Physical Systems with Cloud Support: Architecture, Challenges, and Solutions,” by J. Wan, D. Zhang, S. Zhao, L. T. Yang, and J. Lloret, first proposes a multi-layered context-aware architecture with two crucial service components, including vehicular social networks and context-aware vehicular security. This article then presents an application scenario for context-aware dynamic parking services via illuminating the cloud-assisted architecture and logic flow, and finally discusses some relevant challenges and possible solutions.

## BIOGRAPHIES

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