




Editorial

Mobile Collaborative Technologies and Data Science for Smart Systems

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The society, technologies, and sciences undergo a rapid and revolutionary transformation towards ambient intelligence (AmI). Systems that technologies design, create, and utilize are growing in their smart capabilities and ease collaboration among people while learning and working for benefits of the human being (Internet of things (IoT), cloud computing, smart grids, etc.). Mobile systems could enhance the possibilities available for designers and practitioners. However, a number of requirements must be fulfilled, and complexities resolved before such systems generate reliable, accurate, and timely information which is really trusted and appreciated by users. The main source and asset for making smart systems are data, which our information age made easily accessible. The next main challenge we face is to effectively and efficiently extract knowledge from huge amounts of data from heterogeneous sources to make the systems self-contained and autonomous. To ensure data quality, accurate results and reliable (visual) analysis support in human-centered artificial intelligence applications, additional collaboration issues, and privacy and security requirements should be addressed within a throughout verification and validation management. Major industrial domains are on the way to perform this tectonic shift based on big data, collaborative technologies, smart environments (SmE) supporting virtual and mixed reality applications, multimodal interaction, and reliable visual analytics.

Research on AmI and SmE in urban and rural areas presents great challenges: AmI depends on advances in sensor networks, artificial intelligence, ubiquitous and

persuasive computing, knowledge representation, and spatial and temporal reasoning. SmE builds upon embedded systems, smart integration, and an increasing fusion of real and virtual objects in the IoT. Customized sensor networks are used to detect human behavior and activities; evaluation logic and process mining are needed to replace people's cognitive abilities in ambient assisted living (AAL) applications, detecting recurring activities without being noticed and hurting their privacy. As digitization has become an integral part of everyday life, data collection has resulted in the accumulation of huge amounts of data that can be used in various beneficial application domains. Effective analysis, quality assessment, and utilization of big data are key factors for success in many business and service domains, including the domain of smart systems. However, a number of challenges must be overcome to reap the benefits of big data. As big data handles large amounts of data with varying data structures and real-time processing, one of the most important challenges is to maintain data security and adopt proper data privacy policies. In general, there is a strong need to gain information of interest from big data analysis and, at the same time, prevent misuse of data so that people's trust in digital channels is not broken. To ensure data quality, accurate results and reliable analysis support in health care applications, additional collaboration issues, and privacy and security requirements are addressed within a throughout verification and validation management.

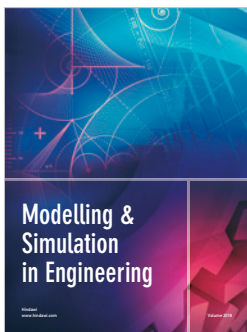
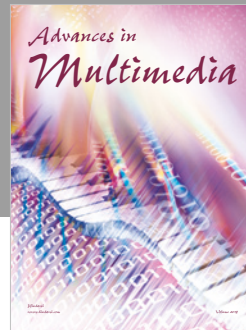
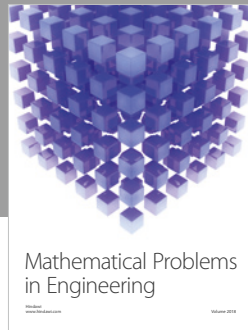
Our time is an exciting period in mankind evolution. We see many research efforts are currently being done to address

the challenges we mention above. Certainly, once they mature, they will substantially solve the obstacles that prevent Aml becoming a significant step towards the well-being of the human beings.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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