BOOK REVIEW

Encyclopedia of Mobile Computing and Commerce (EMCC)

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Encyclopedia of Mobile Computing and Commerce
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The Encyclopedia of Mobile Computing and Commerce (EMCC) is an excellent reference to those who are actively engaged in the field of mobile computing along with its multiple application domains such as commerce, learning, entertainment, and health (a.k.a., m-commerce, m-learning, m-entertainment, and m-health, respectively). Furthermore, the EMCC is an excellent reference to those who would like to know about and keep abreast of the latest findings and development trends in this exciting and challenging field, which is mobile computing. Various topics are addressed in the EMCC including 3G technology, adhoc networks, mobile software engineering, location and context awareness, mobile software engineering, and security, just to name some.

Mobile computing refers to systems in which computational components, either hardware or software, change permanent location in a physical environment. Mobile computing progress and widespread are still tied up to the expansion and growth of mobile devices use. Indeed, mobile devices are still bound to their batteries for operation. Maintaining a constant wireless communication channel is still not completely guaranteed by information network carriers; varying terrain topologies need adaptable propagation techniques of radio signals. Despite all these challenges and because users are eager to have more services powered from their mobile devices, telecommunication companies are putting tremendous efforts in offering new generations of local and wide-area wireless networks as well as new generations of mobile devices.

The Internet and 3W technologies have tremendously changed the way business in general and commerce in particular are
conducted. Nowadays, users are more informed about the current trend of the market before making any decision. Blending 3W technologies with mobile computing will make new types of challenges and issues rise, but at the same time will open up a plethora of research and development opportunities. For example, m-commerce puts new demands not only on support and delivery information technology, but also on the way business processes have to be designed, deployed, tested, and maintained. Developers of m-commerce applications are put on the front line of satisfying the promise of businesses and service providers of enacting these processes from mobile devices. Being able to buy and sell goods/services over mobile devices is an important step towards achieving anywhere, anytime paradigm. This means providing facilities on the spot, no matter where users are located and regardless of the time.

Mobile computing has a major impact on the way businesses offer services to individuals who are constantly on the move. No longer constrained by office hours or confined to specific places, people use mobile devices to complete their duties and to access systems. These systems are specifically planned, designed, and implemented to meet the unique characteristics of wireless communication networks and the unique requirements of mobile users. Some of these characteristics/requirements include information availability where uninterrupted and secure access to information needs to be guaranteed, network survivability where access availability and efficiency despite potential failures needs to be maintained, and information security where confidentiality and integrity are of paramount importance.

The content of EMCC covers 18 topics that are currently being looked into by academia and industry communities in depth and breadth. The 3G topic discusses the tremendous capacity this type of network offers to support bandwidth-hungry applications such as full-motion video, video-conferencing, and full Internet access. The ad-hoc network topic stresses the fact that when mobile devices are in the vicinity of each other (i.e., reachable), they can on the spot form a mobile ad-hoc network (i.e., nonplanned), which enables the exchange of data between these devices without any pre-existing communication infrastructure. Ad-hoc networks pose various challenges to system developers because of arbitrary and dynamic topologies and unpredictable moves of hosts. Collaboration opportunities that rise out of setting up ad-hoc networks should satisfy various criteria like transparency (network configuration should not be a burden on users), autonomy (users’ decisions to join or withdraw from a network should not be motivated), and efficiency (data exchange over a network should not slow users’ devices). Location and context awareness is another topic that is discussed in the EMCC. Context is poised to play a major role in developing adaptable systems that take into account different environmental elements like user location, time of day, capacity of resources, nearby locations, and so forth. Context is a core element in the development of ubiquitous systems where the use of mobile devices will become so pervasive that most users will take them for granted. Another topic in the EMCC is m-learning. M-learning is promoting e-learning to another level of widespread use by allowing learning to be accomplished with the use of mobile devices. This allows
teaching and learning to be extended to spaces beyond the traditional classrooms and, within the classrooms, where teachers and learners are gaining increased flexibility and new opportunities for interaction.

I strongly recommend the Encyclopedia of Mobile Computing and Commerce to researchers and practitioners. It is a timely reference that witnesses the profound changes in the information technology and business fields. In terms of research and development, new opportunities are offered, new challenges are emerging, and last, but not least, innovative solutions are required.

Zakaria Maamar received his PhD in computer sciences from Laval University, Canada, in 1998. Currently, he is an associate professor in the College of Information Technology at Zayed University, Dubai, United Arab Emirates. His research interests lie in the areas of context-aware computing, web services, and software agents.