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## Editorial

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**Biographical notes:** Nidal Nasser is an Assistant Professor in the Department of Computing and Information Science at the University of Guelph, Ontario, Canada. He has authored five book chapters and several journals and refereed conference publications. He has organised and served on the programme committee of numerous international conferences and workshops. His current research interests include heterogeneous wireless data networks, wireless sensor networks and multimedia wireless cellular networks with special emphasis on the following topics: radio resource management techniques, performance modelling and analysis and provisioning QoS. He has received the Fund for Scholarly and Professional Development Award in 2004 from Queen's University.

Hossam Hassanein is a Professor in the School of Computing at Queen's University in the areas of broadband and wireless network architecture, protocols, control and performance evaluation. He is the Founder and Director of the Telecommunication Research (TR) Laboratory (<http://www.cs.queensu.ca/~trl>) at Queen's. He has more than 250 publications in reputable journals and conferences. He has organised and served on the programme committee of a number of international conferences and workshops. He serves as Secretary of the IEEE Communication Society Technical Committee on Ad Hoc and Sensor Networks. He serves on the organising and programme committees of numerous international conferences.

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Future wireless networks will generally be characterised by heterogeneity in architecture, protocols and air interfaces. The wireless networking scene is dominated by two distinct networking platforms:

- 1 cellular networks, which passed through multiple generations –1G, 2G and 3G
- 2 Wireless Local Area Networks (WLANs) championed by the IEEE 802.11 networks.

Recent trends indicate that 3G networks and WLANs will coexist to offer public wireless broadband services to end users. The two platforms offer characteristics that complement each other perfectly.

The 3G cellular systems such as Universal Mobile Telecommunications System (UMTS) and Code Division Multiple Access (cdma2000) will support real-time and non-real-time multimedia services with data rates from 144 kb/s to 2 Mb/s with wide coverage and nearly universal roaming. However, the costs of acquiring the necessary radio spectrum and the required network equipment upgrades are very high. This is in contrast to

WLAN systems such as IEEE 802.11 a/b/g, which provide affordable services and bit rates surpassing those of 3G systems, up to 11 Mb/s with 802.11b and 54 Mb/s with 802.11a/g. However, the coverage offered by WLANs is quite limited and lacks roaming support.

The complementary characteristics of 3G cellular systems (slow, wide coverage) and WLAN (fast, limited coverage) make it attractive to integrate these two technologies to provide ubiquitous wireless access. The purpose of integrating 3G systems and WLANs is to make it possible to use the best parts of both systems. High bandwidth WLANs are used for data transfer where available and 3G systems can be used where WLAN coverage is lacking. Development and standardisation efforts are currently underway for defining suitable architectures for 3G/WLAN integration. However, designing a network architecture that efficiently integrates 3G systems and WLAN is a challenge task that needs a lot of research efforts.

This Special Issue of the *International Journal of Wireless and Mobile Computing* is intended to foster the dissemination of high-quality research in 3G/WLAN

integration. The call for papers for this Special Issue attracted 36 original submissions. After a rigorous review process, we accepted only 11 papers. Therefore, many very good papers could not be included due to the very limited space in this Special Issue. All those accepted papers address various important topics including designing of different 3G/WLAN architectures, vertical handoff management, interworking, charging and billing, resource

management, end-to-end QoS and transmitting video streaming over 3G/WLAN networks.

We would like to thank all the authors who responded to the call for papers. We would also like to express our sincere thanks to all the reviewers who did an excellent job. Special thanks to the Editorial Staff at Inderscience Publishers, for their continuous support and professionalism.