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The IEEE Ottawa Joint Chapter of Communications Society, Broadcast Technology Society and Consumer Electronics Society (ComSoc/BTS/CES), IEEE Ottawa Section, and IEEE Algonquin College Student Branch are inviting all interested IEEE members and other engineers, technologists, and students to a technical seminar on

Mobile Agents for Autonomous Wireless Ad Hoc Networks

by

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DATE: Thursday June 17, 2010.

TIME: Refreshments, Registration and Networking: 06:30 p.m.; Seminar: 07:00 p.m. – 08:00 p.m.

PLACE: Algonquin College, [1385 Woodroffe Ave., School of Advanced Technology, Building-T](#), Room T129

PARKING: No fee after 5:00 p.m. at the Visitors' Parking Lots 8 & 9. Please respect restricted areas.

Admission: Free. Registration required. To ensure a seat, please register by e-mail contacting:

Wahab Almuhtadi almuhtadi@ieee.org or Raed Abdullah raedabdullah@ieee.org.

Abstract

In addition to overcoming the vagaries of propagation impairments and interference in wireless channels, designs of wireless ad hoc networks are challenged by changing network configurations due to node mobility. To meet these challenges, ad hoc networking solutions should incorporate distributed intelligence that enables network nodes to autonomously adapt to changes in networking environments and network configurations. By propagating software codes to mobile nodes for execution and allowing them to spawn new codes for propagation to other nodes, mobile agents can provide an effective solution for these challenges. This presentation provides an overview of the use of mobile agents in wireless ad hoc networks, especially in their practical realization for wireless personal communications and wireless sensor networking. In the first example, we describe the Bluescout mobile agents for scatternet formation in Bluetooth networks, which adaptively reconfigures the Bluetooth scatternet to maximize the size of individual piconets. In the second example, we present the design of a mobile agent platform for wireless sensor networks known as Wiseman, and describe a limited experimental implementation of Wiseman and its evaluation. The presentation concludes with discussions of open research issues concerning the application of mobile agents in wireless networks, and potential applications of mobile agents in wireless networks of the future.

Bio

Victor C. M. Leung received the B.A.Sc. (Hons.) degree in electrical engineering from the University of British Columbia (U.B.C.) in 1977, and was awarded the APEBC Gold Medal as the head of the graduating class in the Faculty of Applied Science. He attended graduate school at U.B.C. on a Natural Sciences and Engineering Research Council Postgraduate Scholarship and completed the Ph.D. degree in electrical engineering in 1981. From 1981 to 1987, Dr. Leung was a Senior Member of Technical Staff at MPR Teltech Ltd., where he contributed to the design of a number of thin-route and mobile satellite communication networks. He also held a part-time visiting faculty position at Simon Fraser University in 1986 and 1987. He began his full-time academic career in 1988, as a Lecturer in the Department of Electronics at the Chinese University of Hong Kong. He returned to U.B.C. as a faculty member in 1989, where he is currently a Professor and the inaugural holder of the TELUS Mobility Research Chair in Advanced Telecommunications Engineering in the Department of Electrical and Computer Engineering. He is a member of the Institute for Computing, Information and Cognitive Systems at U.B.C. He also holds Guest/Adjunct Professor appointments at Jilin University, Beijing Jiaotong University, and South China University of Technology in China. Dr. Leung has made substantial contributions to the design and evaluations of wireless networks and mobile systems over the past 30 years, and has authored/co-authored more than 450 technical papers in international journals and conference proceedings in these areas. He and his co-authors have received several best-paper awards. Dr. Leung is a registered member of the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC), Canada. He is a Fellow of IEEE, a Fellow of the Canadian Academy of Engineering, a Fellow of the Engineering Institute of Canada, and a voting member of ACM. He has served on the editorial boards of the IEEE Transactions on Wireless Communications, the IEEE Transactions on Vehicular Technology, the IEEE Transactions on Computers, Computer Communications, the International Journal of Sensor Networks, the Journal of Communications and Networks, and the International Journal of Communication Networks and Distributed Systems. He has guest-edited several special journal issues, and served on the technical program committee of numerous international conferences. He is a Distinguished Lecturer of the IEEE Communications Society. He was the TPC Chair of the wireless networks and cognitive radio track of IEEE VTC-fall 2008, and the TPC Vice-chair of IEEE WCNC 2005. He was the General Chair of QShine 2007, and a General Co-Chair of IEEE EUC 2009 and ACM MSWiM 2005. He is the General Chair of AdhocNets 2010 and WC 2010, and a General Co-Chair of IEEE MobiWorld 2010, IEEE CWCN 2010, IEEE ASIT 2010, EMC 2010 and BodyNets 2010.