Making Wireless Systems More Reliable

Recent ICICS member Dave Michelson's work in propagation and channel modelling is setting international standards.

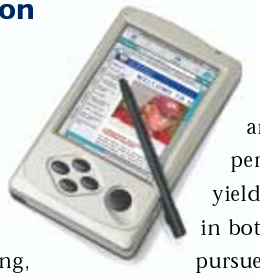
- **Radiowave Propagation**
- **Channel Modelling**
- **Next Generation Wireless**

The infiltration of wireless technology into homes, offices, and industry during the past decade has been nothing short of phenomenal. Dave Michelson, a professor in Electrical and Computer Engineering, is helping to improve the performance and reliability of wireless systems through his work in radiowave propagation and channel modelling.

"We're using wireless technology in situations that would have been unheard of only a decade ago, yet we're increasingly expecting them to perform as well as their wired counterparts," says Michelson. "The key to improving the performance and reliability of wireless systems is to thoroughly understand and characterize the environment in which they operate. Only then can appropriate solutions be devised."

Prior to joining UBC, Michelson spent five years as a member of a joint AT&T Wireless Services and AT&T Labs research team charged with developing propagation and channel models for fixed wireless and next generation wireless systems. The experience and expertise that he acquired there are in high demand.

Among the many projects and collaborations that he currently has underway, Michelson is developing propagation and channel models that will help ORBCOMM (Dulles, VA) improve the performance of their land mobile satellite system in urban and suburban environments. He is also working with Nokia Mobile Phones (Vancouver Product Creation Centre) to develop more effective next generation cell phones, and Inco (Sudbury, ON) to more effectively deploy wireless LANs in mining tunnels located almost 3 kilometres beneath the earth's surface.



Closer to home, Michelson is collaborating with Victor Leung, Resve Saleh, and Robert Schober, fellow ICICS members and colleagues in Electrical and Computer Engineering on an NSERC-funded three-year study concerning Enabling Technologies for Wireless Personal Area Networks. A member of the management committee that oversaw the planning and deployment of the world's largest campus wireless LAN—at UBC!—he is currently working with UBC's IT Services and Cisco Systems to model the factors that affect wireless LAN performance in campus and enterprise environments.

"Collecting propagation data can be expensive and time-consuming, but it's only half the task," says Michelson. "Reducing the data to models useful in system design and simulation is the essential and perhaps most demanding step in yielding the results that my colleagues in both industry and academia need to pursue their own work."

Michelson is also an active member of the international wireless community. He serves as Chair of the IEEE Vehicular Technology Society's Technical Committee on Propagation and Channel Modeling and as an Associate Editor for propagation and channel modelling for *IEEE Transactions on Vehicular Technology*. He also participates in, and has contributed to, several IEEE 802 working and study groups that develop many of the internationally recognized technical standards that wireless hardware and software developers follow when designing products.

Dave Michelson can be reached at 604.822.3544 or at davem@ece.ubc.ca.