New recruit tackles information security in a wireless world

By Alana Mikkelsen

Cell phones, the Internet, wireless hotspots. They make our lives more convenient. But they also open us to potential sabotage, eavesdropping, identity theft and privacy violations. In a wireless world, how can a well-connected technophile, or even a neophyte, be sure they are safe while online?

Finding the answer is up to experts like Rei Safavi-Naini, the new holder of the iCORE Chair in Information Security at the University of Calgary.

"There is this constant battle between the 'good guys,' those who want to make systems secure, and the 'bad guys,' those who want to compromise the security of systems," says Safavi-Naini, who came to Calgary from Australia where she directed the Telecommunications and Information Technology Research Institute at the University of Wollongong. "We want to provide security for users in their everyday use of the Internet and electronic communication and, especially with privacy issues, give a bit more control back to the user."

Safavi-Naini's recruitment is the latest in a series of efforts by the provincially funded Alberta Informatics Circle of Research Excellence (iCORE) to attract top-notch researchers who will build Alberta-made solutions to information security and privacy issues and drive those solutions to the marketplace.

"iCORE's ability to recruit Dr. Safavi-Naini to align with other iCORE chairs in human computer interfaces, networks and communications, new architectures and devices, high performance computing, intelligent information systems and software systems is a real strength in Alberta," says Randy Goebel, president and CEO of iCORE.

While in Australia, Safavi-Naini worked to develop the next generation of intrusion detection systems for the Defence Signal Directorat—the Australian equivalent of the U.S. Secret Service. At the U of C, she will lead a research team dedicated to evolving information security from theoretical work to applied cryptography and other new security solutions. Ultimately, the work will help protect banking information, commercial information networks and remote sensing efforts. It also aims to advance intrusion detection systems and prevent attacks on wireless communications, including breaches that can happen from a simple coffee shop or airport hotspot, or home wireless connection.

"The research program Dr. Safavi-Naini will build, and the work her colleagues and students are already performing, will be of great benefit to Alberta and Canadian industry and to the general public as well," said Sandy Murphree, dean of the U of C's Faculty of Science.

A professor of mathematics and computer science, Safavi-Naini will direct the U of C's Centre for Information Security and Cryptography for the next two years, as well as its iCORE Information Security Lab. Along with strengthening collaborations among physicists, mathematicians, computer and other scientists, she will also work to create closer ties with local industry, including the Security Professionals Information Exchange (SPIE).

"We want to figure out how the bad guys create their attacks, so we can stay one step ahead of them," says Heather Crawford, a master's student who will be collaborating with Safavi-Naini as part of the computer science department's evolving focus on information security. Crawford is studying so-called "phishing" attacks, which lure computer users to fake websites by sending emails that look, for example, like messages from a person's bank. When the user logs in, the phisher can steal the user's information.

"These sites are up, at most, for a day or two," says Crawford. "We want to find out how they make the sites, how they store the information and how to trace them back to the owner."

The chair position is supported by an iCORE Industry Chair Establishment (ICE) grant of $3.85 million over five years, in addition to funding from the University of Calgary, the Canada Foundation for Innovation and the Natural Sciences and Engineering Research Council (NSERC).

For more information, contact

Sho Sengupta
Communications Director
Alberta Informatics Circle of Research
Excellence (iCORE)
3608 - 33 Street NW
Calgary, Alberta T2L 2A6
Phone 1 403 606-7284
Fax 1 403 210-5337
Sengupta@icore.ca
www.icore.ca

Alana Mikkelsen
Senior Communications Manager
Faculty of Science, External Relations
University of Calgary Admin Building
A128, 2500 University Drive NW
Calgary, Alberta T2N 1N4
Phone 1 403 220-5824
Fax 1 403 220-1312
Amikkels@ucalgary.ca
www.ucalgary.ca