Researcher finds 'network privacy' an online oxymoron

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Computer science professor Alan Mislove's research focuses on the structure, growth and applications of online social networks such as Facebook. Photo by Lauren McFalls.

(PhysOrg.com) -- Computer science professor says he only needs a mite of information to fill in Facebook users' personal data -- and he has created the algorithm to back it up.

Online social networks such as Facebook, Twitter and LiveJournal are for most of us a tranquil diversion, a way of killing time and keeping in touch by uploading photos, streaming videos and posting pithy updates on our lives.

But for Northeastern assistant professor of computer and information science Alan Mislove, they[1]re the subject of serious investigation into

how data on these networks can be used, and possibly, manipulated.

Mislove, whose scholarship focuses on the structure, growth and applications of online social networks, recently developed an algorithm that can predict the personal information of any given Facebook user in the Rice University network, including campus residence, matriculation year and academic focus.

As a post-doctoral researcher at the Max Planck Institute for Software Systems, in Germany, Mislove coauthored a paper on his research titled, "You are who you know: Inferring user profiles in online social networks ." He presented the paper in early February at the Association for Computing Machinery's International Conference on Web Search and Data Mining in New York.

Mislove's findings underscore a fast-spreading realization about social networks: hiding, censoring or blocking aspects of our personal lives on our favorite sites doesn't necessarily mean that we're any more anonymous than the user who documents his every move through photos and status updates.

By locating only 10 to 20 percent of all residents of a particular college residence hall on Facebook, Mislove can pick out other users who live in the same building with 95 percent accuracy. By singling out 20 to 30 percent of a university's students who enroll in a particular year, he can predict which other Facebook users arrived on campus at the same time.

Facebook users who belong to the same community tend to be each other's friends. And because social networks have high rates of clustering—the chances that two of any given user's friends know each other is 30 percent—a tiny bit of information can go a long way to making the notion of network privacy a thing of the past.

“Privacy is no longer a function of the things you do,” Mislove explains. “It’s also a function of what your friends and members of your community do.”

In other words, a Rice University student would not have to include the fact that he lives in “Building A” for Mislove to make a highly accurate guess. New users don’t even have to bother to fill out their own profiles, Mislove jokes; with just a jot of data, he’ll do it for them.

Mislove, who is currently turning his attention to New Orleans’ regional Facebook network, says he had no idea four years ago that his research would take this direction. But as the new Web technology sprung into place, he found a niche among a few social networking experts.

“Nobody was really looking into it,” he says. “In the Web 1.0 days, people designed computer systems and page rank helped people find pages.” Put another way, users were disconnected from their Internet experience, but online social networking changed all that.

“Social networking Web sites are bringing users into the system,” he says.

Provided by Northeastern University