HP researchers try to tell you who your friends are

December 17 2009, By Brandon Bailey

Most people have scores of contacts, scattered around their mobile phone, e-mail address book and multiple social networking sites. Scientists at Hewlett-Packard can tell you which of those contacts are your closest friends.

It may sound a bit out of character for a company like HP, perhaps best known for producing mass-market PCs and printers, along with hardware and software for big commercial data centers. But HP researcher Bernardo Huberman and his colleagues think there's value in winnowing the wheat from the chaff of social networks, especially in an era of countless Twitter followers and nearly infinite amounts of online information.

"Our work is at the intersection of social behavior and information technology," Huberman said in an interview last week. Gesturing toward a nearby laptop computer, he added, "These do all sorts of things. They get faster and faster. But what is really interesting is what happens when people are using these devices and suddenly discover new ways of interacting with each other."

As director of the social computing group at HP Labs, Huberman leads a team that has been studying how people interact and share information on digital networks. Their work led earlier this year to a mobile phone application that gives users a constantly updated list of their most frequent contacts. Another app lets people share location-based recommendations with their friends or a much larger crowd.

And in a project that could appeal to operators of online news or retail sites, the team is testing a computer program that will automatically position items on a Web site based on an algorithm that can predict their popularity.

Huberman's team is one of 19 research groups at HP Labs, headquartered in Palo Alto, Calif., that focus on subjects ranging from building massive datacenters to commercial printing and business analytics. While their work is wide-ranging, HP says its scientists pursue research that could eventually lead to commercial applications, which the company may develop or license to other firms.

HP says social computing research is part of the company's strategy to expand its role in "cloud computing," in which HP wants to deliver a variety of services to consumers and business customers over the Web.

Experts agree there is commercial value in understanding social behavior in a high-tech world, whether to provide specific services or to deliver targeted information and marketing messages. Social networking is not just confined to Web sites such as Facebook or LinkedIn, said analyst Charlene Li of the Altimeter Group, a business consulting firm that focuses on "disruptive technologies." In the future, she added, "Everything is going to be social. Social will be like air."

Li said she was especially interested in the potential for a phone application called Friendlee, which Huberman's team unveiled as a prototype in September. It grew from their analysis of traffic on Twitter and other online platforms, which confirmed that most people have "meaningful" interaction with only a handful of friends or close associates, no matter how many "followers" or contacts they list.

Friendlee analyzes how often a user communicates with others by phone, e-mail or text message, and then builds a list that ranks the most

frequently contacted at the top. The program constantly revises that list, recognizing that people change their calling patterns as they travel, take on new projects or enter new personal relationships.

The program also lets users share with their closest contacts such information as their location, status or availability for calls, and even the names of other friends or frequently called businesses, such as a favorite takeout restaurant. While some might be reluctant to divulge that information, Huberman said the program ensures that such sharing is optional.

Other companies such as Xobni have developed programs that let users analyze their e-mail usage and mine those patterns for useful information. Li said combining that with phone traffic could be especially helpful for business users, such as sales reps, who interact with a variety of people for their jobs.

While Huberman said Friendlee needs further testing before a public release, his team unveiled a separate application this month for users of Android-based phones. The program, called Gloe, uses a phone's GPS sensor to offer a range of location-based information, from restaurants to plot summaries of commercial films that were shot in the area. It also lets users vote on recommendations and see the results, drawn from all other users or only from those listed as Facebook friends.

Meanwhile, the team has also been searching for the holy grail of Web site operators: a formula for predicting which items will draw the most interest. Analyzing huge sets of data, Huberman and colleagues, including Fang Wu and Gabor Szabo, tracked the popularity of items posted on YouTube and Digg.com, a site that lets users recommend interesting stories and photos.

The work led them to create software that predicts popularity, based in

part on how new an item is _ because popularity declines over time _ and how many hits or downloads it has drawn in the recent past. Huberman said the program, called i-catcher, can determine how long an item should be displayed prominently, to maximize attention, and when another item should take its place.

Researchers are now testing the program in partnership with a Danish news site, as well as on an internal HP site that displays content from employee blogs, wikis and other online sources. Huberman said HP's marketing department has also expressed interest, and he thinks it could someday be used on a variety of commercial Web sites.

"Today we have millions of people producing content," he said. "What is scarce is attention. You need people to pay attention to what you are selling."

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