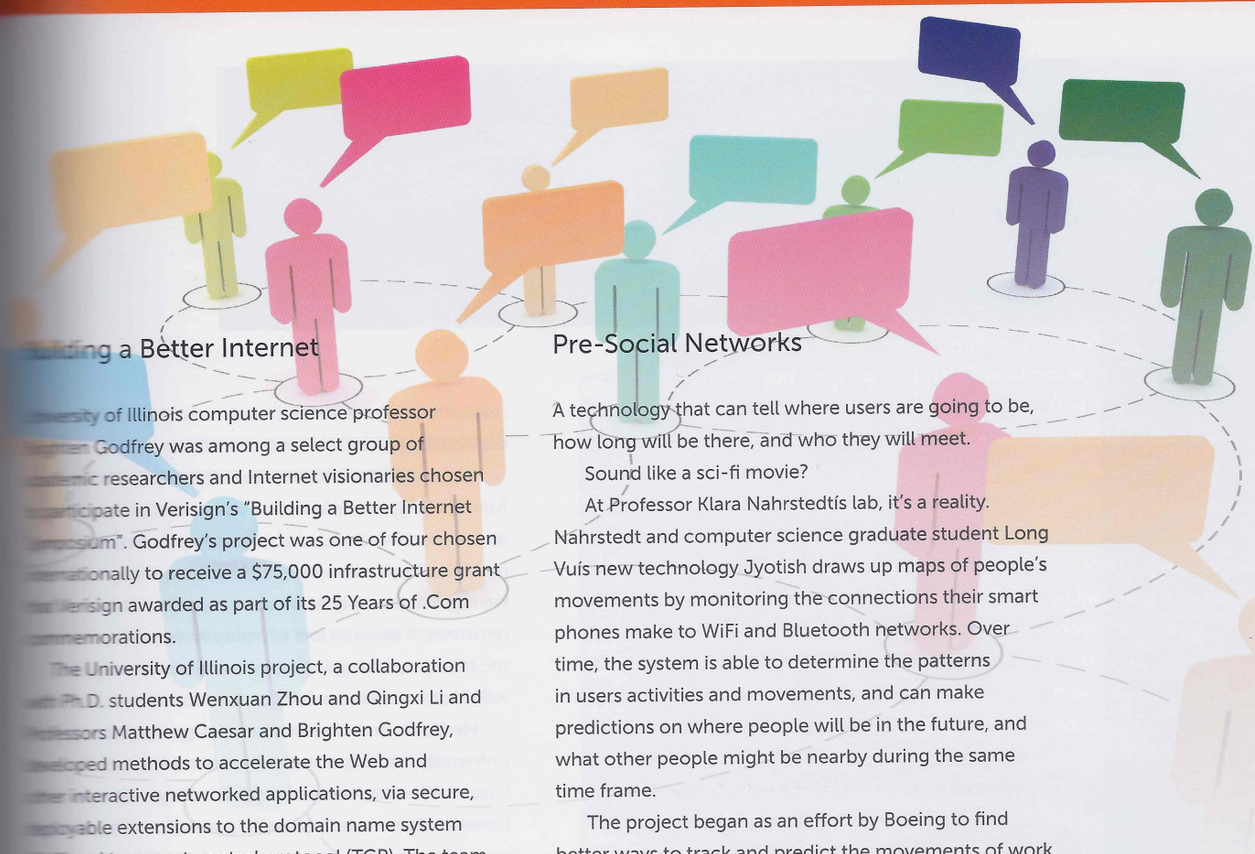


Building a Better Internet

University of Illinois computer science professor Brighten Godfrey was among a select group of academic researchers and Internet visionaries chosen to participate in Verisign's "Building a Better Internet Symposium". Godfrey's project was one of four chosen internationally to receive a $75,000 infrastructure grant that Verisign awarded as part of its 25 Years of .Com commemorations.

The University of Illinois project, a collaboration with Ph.D. students Wenxuan Zhou and Qingxi Li and professors Matthew Caesar and Brighten Godfrey, developed methods to accelerate the Web and other interactive networked applications, via secure, deployable extensions to the domain name system (DNS) and transport control protocol (TCP). The team created the Accelerated Secure Association Protocol, or ASAP, which establishes a connection between client and server quickly and securely. The protocol enables the server to verify the key security property that the client's source address is not forged, yet avoids the delay of TCP's "handshake" method of verification.

"What I'm really excited about is how do we make the other side of the world feel like it's right at our fingertips," said Godfrey. "The exciting thing is that this work can have broad impact. If ASAP is widely deployed, it would make every connection on the web faster."

Pre-Social Networks

A technology that can tell where users are going to be, how long will be there, and who they will meet.

Sound like a sci-fi movie?

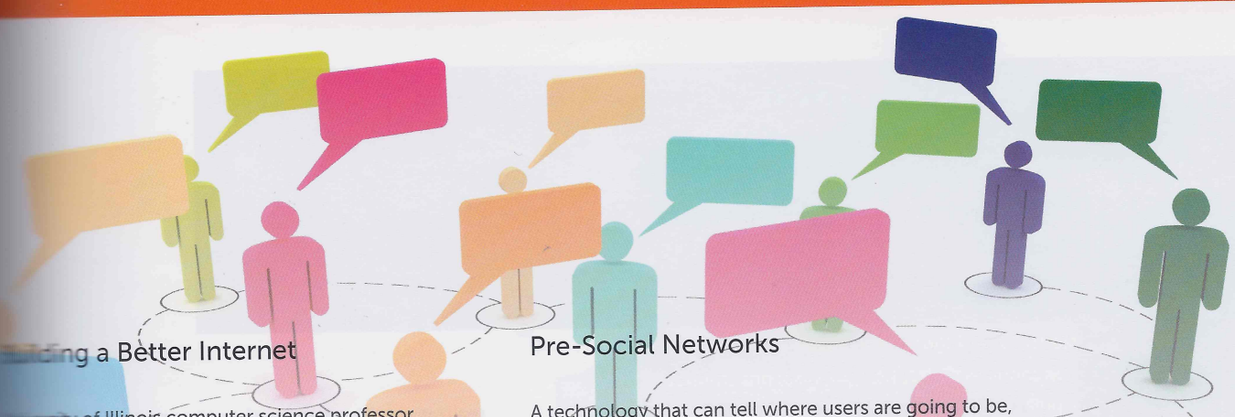
At Professor Klara Nahrstedtís lab, it's a reality. Nahrstedt and computer science graduate student Long Vuís new technology Jyotish draws up maps of people's movements by monitoring the connections their smart phones make to WiFi and Bluetooth networks. Over time, the system is able to determine the patterns in users activities and movements, and can make predictions on where people will be in the future, and what other people might be nearby during the same time frame.

The project began as an effort by Boeing to find better ways to track and predict the movements of work crews in its aircraft manufacturing facilities.

"It is well known that people movement exhibits a high degree of repetition since people visit regular places and make regular contacts for their daily activities," says Vu. "Our work constructs a predictive model by exploiting the regular pattern of people movement found in real joint Wifi/Bluetooth trace."

The model constructed by Jyotish is able to answer three fundamental questions: (1) where the person will stay, (2) how long she will stay at the location, and (3) who she will meet.

In order to construct the predictive model, Jyotish includes an efficient clustering algorithm to exploit regularity of people movement and cluster Wifi access point information in Wifi trace into locations. Then, a Naive Bayesian classifier assigns these locations to with assigned locations is used to construct predictive model including location predictor, stay duration predictor, and contact predictor.



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