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CURTAILING ‘SURF WASTE’ AT WORK CAN BE ACCOMPLISHED WITH NEURAL NETWORK, SAYS UNIVERSITY OF DAYTON PROFESSOR

DAYTON, Ohio — Using search engines to find relevant content on the Internet is like clicking the remote to find out, one by one, what’s on the hundreds of channels your TV cable system provides, says an expert who researches Web use. And employees searching for job-related information can spend a lot of time sifting out the irrelevant sites.

But if an organization would spatially map its general Web usage and apply an artificial neural network to continually update and reflect current needs, “surf waste” could be substantially reduced, said Anna Langhorne, assistant professor of communication at the University of Dayton who studied employee use of the Internet at two companies.

“You can do a Google search and get 100,000 Web sites that are hits for one or more of the search terms, but they’re not in context. They’re not patterned or based on any kind of similarity,” she said. “If you map usage, if you find the pattern of usage that exists among employees, then you can implement a Web structure to better serve users’ needs. This justifies the use of neural networks for developing a company profile of Internet navigation behavior.”

Artificial neural networks are information-processing models that mimic the way the human brain processes information. Based on mathematical models, they adapt to changes over time. Neural networks have been incorporated into search engines like InfoSeek and Yahoo, but have not yet been used to build user profiles that can learn.

“For maximum usability, it’s necessary to implement a user- and client-centered Internet interface based on user behavior patterns,” Langhorne said. “As a user’s navigation needs and habits change, the neural network will automatically account for the changes, producing a seamless, dynamic, individual, specific experience,” she said.

Langhorne examined employee use of the Internet at two companies, one with 20 employees with Internet access and one with 25 employees able to access the Internet. She evaluated how those employees navigated the Internet and found that Web sites that employees visited consecutively cluster together when depicted on a three-dimensional map and are more
similar than those far apart in visitation.

Among the employees, she noted Internet use for tracking shipping from manufacturers and to retailers, researching product and industry information, and checking current events. Five of the most popular sites visited by employees in the study also appeared among the top nine on Media Metrix's 1999 list of the most popular at-work Web sites.

She also discovered evidence of hobbies among the employees such as music, books, cars, cigars and guns. By creating a job-related interface, an organization could minimize employee tendencies to stray from job-related functions, she said.

"In terms of organizational goals, this is a powerful application because it is now possible to develop an interface specific to each organization," Langhorne said. "Reducing the amount of Internet search time necessary to complete tasks can decrease time and monetary investments."

But she's not advocating preventing all personal use at work. "Some people take a smoke break, others want to surf the Internet."

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