

# Researchers develop new expert-finding technique for online forums

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The system that Alan Wang, associate professor of business information technology, helped develop allows users to find the most recognized experts on a given topic.

Online discussion forums have become a popular means for seeking and sharing knowledge, but they vary in their effectiveness in identifying specific expertise for problem solving.

"Unlike experts in the real world whose expertise is certified by

advanced degrees and/or authoritative titles, experts in the virtual world are difficult to identify," says G. Alan Wang, an associate professor of business information technology in the Pamplin College of Business.

Wang is part of a research team that developed a new expert-finding technique for online forums. The computer program evaluates expertise based on both the expert's authored documents and social status within his or her knowledge community.

Expert finding has become increasingly important in large corporations, Wang says. "Companies such as GE, Dell, IBM, KPMG, Microsoft, and Google have amassed a huge volume of data—in addition to knowledge exchanges on internal discussion forums, employee emails and other internal communications, and Web-based customer service interactions."

The [computer program](#) that Wang's team developed, ExpertRank, "could be easily extended or modified to these data to help build expert databases or organizational memory systems that facilitate knowledge exchange among employees," he says.

"A large online community may have millions of participants and a knowledge repository of millions of text documents in the form of online postings."

But an effective knowledge source should make accessible not only knowledge but also the sources of knowledge—experts who can either solve the problems directly or suggest other sources of information as indirect solutions, he says. Expert finding is thus an important tool for online forums.

"When a user has a problem and is looking for a solution, he or she may spend time browsing past relevant postings or wait for responses by initiating a new discussion," Wang says. An expert-finding technique

allows the user to choose to consult the expert members of the forum directly. "It is convenient and effective for both users who seek [knowledge](#) and those who are willing to share."

Very few expert-finding systems consider both document-based relevance to a given query (the more documents an individual has authored in an expertise area, the higher the degree of expertise the individual has or is perceived as having) and the expert's social importance (inferred from his or her past interactions with other members in the community social network), and ExpertRank fills this need, Wang says.

Testing their computer algorithm in Microsoft Office Discussion groups, the researchers found that it "significantly" outperformed commonly used document-based expert finding techniques.

**More information:** G. Alan Wang, Jian Jiao, Alan S. Abrahams, Weiguang Fan, Zhongju Zhang, "ExpertRank: A topic-aware expert finding algorithm for online knowledge communities," *Decision Support Systems*, Volume 54, Issue 3, February 2013, Pages 1442-1451, ISSN 0167-9236, [dx.doi.org/10.1016/j.dss.2012.12.020](https://doi.org/10.1016/j.dss.2012.12.020).

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