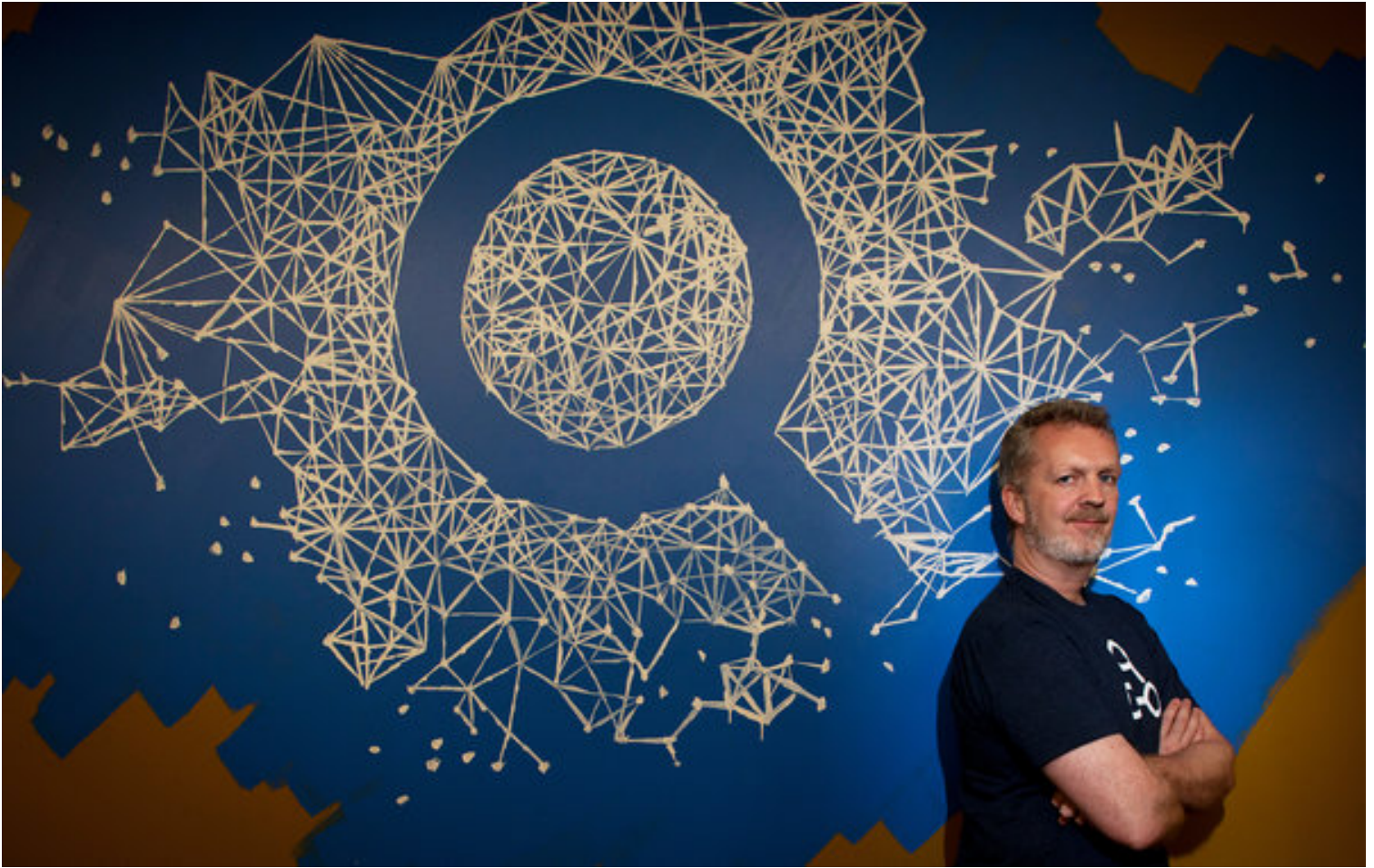# A New Tool Aims to Help Facebook Users Dig Deep

MENLO PARK, Calif. — Facebook is an excellent tool for certain kinds of social interaction. With a couple of clicks, you can share a cute photo of your new-born baby. You can pop over to the page of a college buddy and find out where he lives now and whether he is a fan of "Mad Men."

But just try finding that photo of Mom and Dad in front of the Eiffel Tower during their 2008 trip to Paris, or the name of that lovely bistro nearby that they mentioned in a status update. Odds are, you would have to plow through a lot of old posts and photos to dig out that information, if you could find it at all.

Now, Facebook is trying to make it easier to find that lost photo or restaurant recommendation and unearth other information buried within your social network with a tool it calls Graph Search.

On Monday, the company will roll out the feature to its several hundred million users in the United States and to others who use the American English version of the site. Other languages will follow.

Developing a sophisticated search feature is vital to Facebook's long-term success, both to deepen users' engagement and to make it more appealing to advertisers.

Experts say that Facebook's technical achievement so far is impressive. Privacy could still be an issue, however, as more user data becomes easily accessible. Also, the feature is dependent on Facebook users volunteering more information about their likes and dislikes.

Ever since Facebook released an early version of the tool in January, the development team has been observing and listening to millions of testers and making improvements. "We launched it early, when it still was in a pretty raw state," Lars Rasmussen, the engineering director of the project, acknowledged in a recent interview.

Early on, Mr. Rasmussen said, users had trouble even finding the search box, which was blue and melded into the border at the top of every Facebook page. The team eventually made the box white and used words to explicitly describe its purpose.

The tool also has struggled to understand how people actually use language.

For example, typing in "surfers who live in Santa Cruz" confounded the search engine, which was tuned to recognize the phrase "people who like to surf" but not synonyms like surfers or "people who like surfing," said Loren Cheng, who leads the team of linguists who are working to refine the tool's natural language capabilities.

The engineers also had to adapt the algorithms to consider the many ways that people express interest in a topic.

For example, Mr. Rasmussen, a ballet fan, said that when he looked for "friends who like ballet," only two popped up. But many more friends had liked the pages of individual ballet companies. So the search engine now takes into account related pages when assessing whether users like a topic.

Facebook's Graph Search is still a work in progress, as company officials are quick to acknowledge. Its recognition of synonyms and related topics is spotty. It cannot yet find information in status updates, a top request from users. It does not yet incorporate information from third-party apps like Yelp or Instagram, which is owned by Facebook. And the new search tool is not available on Facebook's mobile apps, which are increasingly the way that people use the service.

But Facebook believes it is now good enough for wide release. And despite the tool's limitations, technologists praised the company's work.

"There is a near infinite variety of ways to say anything in English or in any other language," said Nick Cassimatis, an associate professor at Rensselaer Polytechnic Institute and a co-founder of SkyPhrase, a start-up working on similar natural-language search technology. "They are trying to memorize all the ways of saying something."

Unlike Google's familiar search engine, which typically takes the keywords entered into a search box and matches them to the most relevant Web pages that contain them, Facebook's search looks primarily at structured data.

That means the company analyzes the virtual check boxes that people fill out on the site, like movie pages they have liked, restaurants they have checked into, the city they live in and their relationship status.

That creates particular challenges.

"We don't go through and 'like' all the things that we really like," said Danny Sullivan, founding editor of Search Engine Land and a longtime observer of the

industry. "And if you don't do that, the database is minimal."

Privacy is another complication.

The company promises that Graph Search will show only information that the searcher would normally be allowed to see under the privacy settings defined by the person who posted the data. So a search for Christians in San Francisco who like to knit won't pull up everyone who fits that profile, only those who have decided to publicly disclose their religion, love of knitting and location.

As Graph Search becomes widely available, Facebook users might be surprised at what information about themselves shows up in searches that others do, especially if old items were posted with looser privacy restrictions.

Finally, the company must deal with the flood of new data coming in. It said its 1.1 billion global users posted 3.3 million new items every minute in May.

If the company does make it easy for users to sift through all of that information, it could open a new era in search.

Google and specialized search sites present users with information from strangers, Mr. Sullivan said. Facebook "is potentially promising us the ability to search the knowledge of our friends."

Mr. Cheng from the linguistics team said that based on Facebook's current tests with about 20 million people, the most frequent queries are people searches, as users seek friends of friends that they might have met, potential dates and people who live in a particular city. Photo searches came in second, followed by recommendations for restaurants and bars, hotels, stores and gyms.

This year, Facebook intends to expand the search tool to include results based on scans of the actual words in status updates as well as data from third-party applications. Graph Search will also be added to Facebook's mobile apps. The company is even experimenting with predictions, suggesting movies and books a person might like based on what else they like and what their friends

like.

Facebook hopes that an ever-improving search tool will prompt users to spend more time on the service and share more information about themselves by, say, checking in to restaurants and liking more pages.

That would have myriad benefits for Facebook's business. More detailed dossiers of its users would allow the company to better target advertising to people receptive to a marketer's message. And since people tend to trust recommendations from their friends, the companies that pop up in search results could find it more appealing to advertise to searchers.

For Facebook's users, a powerful search tool makes the service a better place to get information and connect with others.

"Finding people, finding activities, finding recommendations is part of what makes Facebook useful," said Colin Sebastian, an analyst at R.W. Baird & Company. The problem, he said, "is that there hasn't been a way for users to access that data."