

Read the next two selections and answer the questions that follow.

2009 Young Innovators Under 35: Jaime Teevan, 32

by Kurt Kleiner

Technology Review

Sept/Oct 2009

Microsoft Research—Using personal information to improve search results

- 1 In 1997, when search engines were relatively new, Jaime Teevan took an internship at Infoseek the summer before her senior year at Yale. William Chang, the chief technology officer, put her in a room with some research and told her to “find something fun to do.” She came up with some ideas for judging link quality and helping people navigate the company’s search engine, and she wrote the code to implement the changes. “Once, I brought the search engine down for a couple of hours,” she says with a laugh.
- 2 But she also discovered a career path. Today, the Microsoft researcher is a leader in using data about people’s knowledge, preferences, and habits to help them manage information. She studies the ways people navigate the flood of information available in the digital age and builds tools to help them handle it.
- 3 By now, personal information management has become an Internet buzzword. But Teevan pioneered the field as a graduate student working with David Karger, a professor in MIT’s Computer Science and Artificial Intelligence Laboratory. “She literally almost single-handedly created this whole area,” says Eric Horvitz, a principal researcher who manages teams pursuing advances in search and retrieval at Microsoft Research.
- 4 She began by studying how people search the Internet. They use such different strategies, she found, that a one-size-fits-all search engine can never satisfy everyone. So Teevan started building tools that sort Internet search results according to a user’s personal data, previous searches, and browsing history.
- 5 One of her first tools was a search engine called Re:Search. Early on, Teevan discovered that people are often looking for information they’ve already

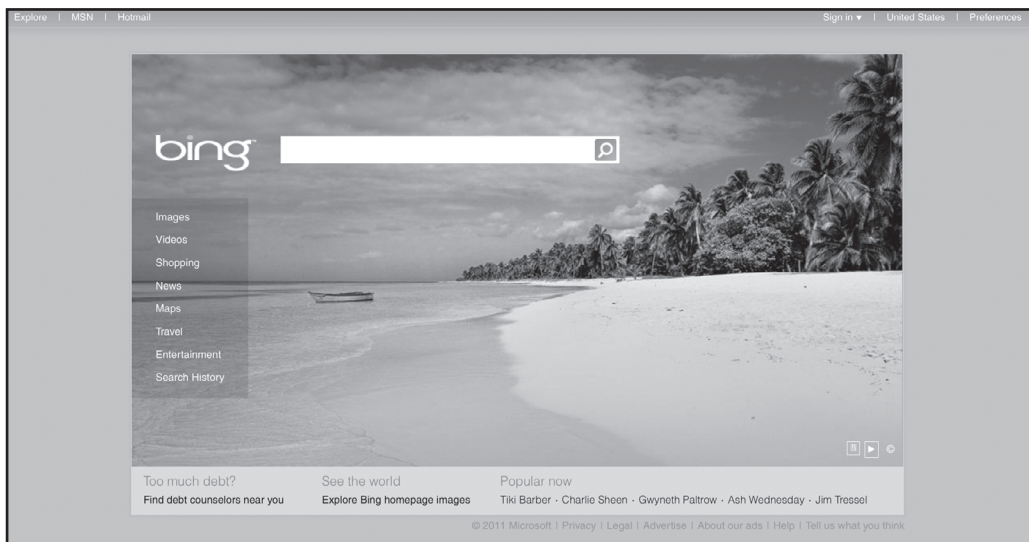


Jaime Teevan, a 2009 Young Innovator honoree, works at Microsoft. She researches how people search for information online and what they do with the large amount of information they find.

Photograph courtesy of Jaime Teevan and Microsoft

found before; more than half of all Web-page visits and a third of all search queries are repeats. But since the Web is always changing, people often have a hard time finding a site again. Re:Search relies on information from a user's past searches to determine which items are more relevant to him or her. Teevan found that people tend to remember the first item in a list of previous search results, as well as items they clicked on; they also tend to get confused if the results they clicked on have changed position in the list. So she designed Re:Search to keep clicked links in their previous positions and insert new links in positions where they will be noticed without being confusing or distracting.

- 6 One of Teevan's key ideas is that search engines can employ information about users to help them zero in on the results they need. Since she joined Microsoft Research in 2006, she's developed a number of experimental browser plug-ins that work with Internet Explorer and that will refine search results for each user. One, called PSearch, uses an index of documents, e-mails, and other material on the user's hard drive to customize the results delivered by an Internet search engine. For instance, if she types her husband's last name into a typical search engine, the top hits are for a financial-services firm that shares his name. When she turns PSearch on, the first sites listed relate to her husband.
- 7 Horvitz says that PSearch has been piloted internally at Microsoft for a number of years and has proven very promising. "What I like best is that all the personalization is going on on your desktop," he says. In fact, PSearch never shares a user's personal information with the search engine—the results are re-sorted after they're delivered to the user's computer.



Bing's home page reflects the results of Jaime Teevan's research about Internet searches. The "Search History" feature on Bing uses personal information to allow users quick access to previous searches.

Image used by permission of Microsoft.

- 8 Teevan's programs have yet to be released commercially, and because search is such a competitive area for Microsoft, both she and Horvitz declined to discuss any such plans. But both eagerly talk about her contributions to Microsoft's new search engine, Bing. Teevan says she met regularly with Bing's developers to help them understand how people search and how that knowledge might be used to improve search results. Horvitz points more directly to the left-hand column of the Bing search results page, where a short list titled "Search History" appears. "You see just the tip of the iceberg right now in the current Bing search." Teevan's work is actually more advanced, Horvitz says. Hinting at things to come, he adds, "You might watch that corner of Bing over time."

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Digital Dad Versus the Dinosaurs

by Emily Bingham

Newsweek

April 6, 2009

1 Sometimes, being right hurts the most. I imagine that's how my father, Barry Bingham, Jr., would have felt about the crisis that could end America's golden age of print journalism. My great-grandfather bought *The Courier-Journal* of Louisville, Ky., during World War I, and my father ran the paper from 1971 to 1986. Now it's going through the same layoffs and cost-cutting measures that are happening to newspapers across the country. Lately, I've wondered a lot about what my father would be thinking right now—because he saw all of this coming.



Barry Bingham, Jr., meets with his Courier-Journal staff in 1984. One year earlier, Bingham had declared that the newspaper business resembled "the last dinosaur in the swamp."

© The Courier-Journal

- 2 Addressing his classmates at their 25th college reunion, my father predicted that by the time they met for their 50th, "most of what we read will be transmitted into our homes or offices electronically." This was a strange thing to say in 1981, when the revolution in personal computers had scarcely begun and no one had heard the words "World Wide Web." Unlike almost everyone else in the media industry back then, my father anticipated the coming era of electronic news, and he was genuinely excited about it. He believed newspapers could save themselves from extinction—but only if they adapted early and intelligently to new technology.
- 3 It became his passion—a subject of countless family dinner discussions. But as a gangly 16-year-old, I tuned out most of the talk. I was more interested in finding a party and a boy to kiss.
- 4 I wasn't the only one who turned a deaf ear. Newspaper people are a crusty lot, and Gutenberg's technology, with a few tweaks over the centuries, had held up well enough for most. My father would buttonhole colleagues at meetings, where they grumbled that he was distracting from what they considered their business: getting news onto paper and into a reader's hands. One former publisher told me recently that Barry Bingham, Jr., "was the visionary among us. He said what we didn't want to hear and we ran from it."

5 And so, when the news broke late last year that subscribers to the *Detroit Free Press* would soon get home delivery just three days a week, I turned to my kids and told them their grandfather knew this would happen. He was a third-generation publisher, but he was keenly aware of how “new media” could positively affect the family business: his grandfather bought a radio station in 1922 and his father entered the TV market in 1950.

6 As a little girl visiting him at *The Courier-Journal's* office in downtown Louisville, my favorite stop was the deafening press room. I was too young to make sense of his efforts to modernize the operations, but under his management, the newspaper was at the vanguard of technological change. In 1973 he began replacing typewriters with word processors. The composing room

was one of the first to be computerized, and my father marveled at the way content flew paperlessly around the building.

7 Out of this petri dish of the 1970s, my Datsun-driving environmentalist dad hatched his vision of what he called the “electronic newspaper.” It would arrive, “Jetsons”-like, via cable, satellite or telephone lines, accessed and updated around the clock. Subscribers would pay lower rates. Trees would be spared, fuel conserved. Information was his passion, and his goal was to offer as much of it to as many people as possible. (He was such an info junkie that, many years later, when I was pregnant, he couldn’t comprehend my decision not to find out whether I was carrying a boy or a girl.) He believed that the future of news lay in allowing readers to decide what was most important to them, as with today’s customizable home pages. To most editors, this was heresy. This frustrated him and he made little effort to hide it. “This business,” he snapped to a reporter in 1983, “is like the last dinosaur in the swamp.”

8 In 1986 *The Courier-Journal's* pilot electronic edition, accessible by modem, made a promising debut. But within a few years, several family members decided to sell their stock in the company, and the Gannett Co. purchased the paper. His parents supported the sale over his objection. He lost his job and his platform.



Massive rolls of newsprint paper are used in newspaper printing machines. In recent years, newspaper circulation and income have fallen sharply, while one-quarter of all newsroom employees have lost their jobs.

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9 As the Internet exploded, my father took a certain satisfaction in being right. But he was never a finger-wagger. By the time he died in 2006, at 72, he could have easily gotten his news online. Yet he kept his print subscriptions and read *The Courier-Journal* and *The New York Times* over breakfast. The swamp clung a little—even to him.

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