

## Lexera Story (Press-Enterprise, June 10, 2000)

<http://www.inlandempireonline.com/business/stories/061000/engine.shtml>

### Lexera is built for speed

New search engine uses conceptual representation to retrieve information rather than relying on keywords or URLs.

By Rick Burnham  
The Press-Enterprise  
RIVERSIDE

You're looking on the Internet for information on mileage in sport utility vehicles. You go to a search engine like Yahoo, type in "mileage in sport utility vehicles,"; and out pops hundreds of sites.

Most aren't related to what you want. All mention SUVs. But most have nothing to do with your real question, mileage rankings for SUVs.

It's a problem that's getting worse. As the number of Web pages (now estimated at more than 800 million) grows, it is becoming more of a challenge to quickly find useful information on the Web.

Providing faster, more relevant Internet search services is the goal of Lexera, co-invented by Curt Burgess, an associate professor of psychology at UCR and president and chief executive of Language Machines Inc. in Riverside.

Lexera uses artificial intelligence to retrieve, categorize and filter information from the millions of sites that make up the Internet. The goal is to make Lexera the leading provider of "behind the scenes" search and navigation services for Internet portals such as Yahoo, Internet service providers, cable media companies, corporate Intranets, government networks and educational websites, Burgess said.

Burgess is seeking \$500,000 in first-round financing to develop a full-fledged working demo of Lexera's search services. Another goal is to establish a company around Lexera that will license, syndicate and distribute the search engine. (Burgess can be reached by e-mail at [curt@languagemachines.com](mailto:curt@languagemachines.com)).

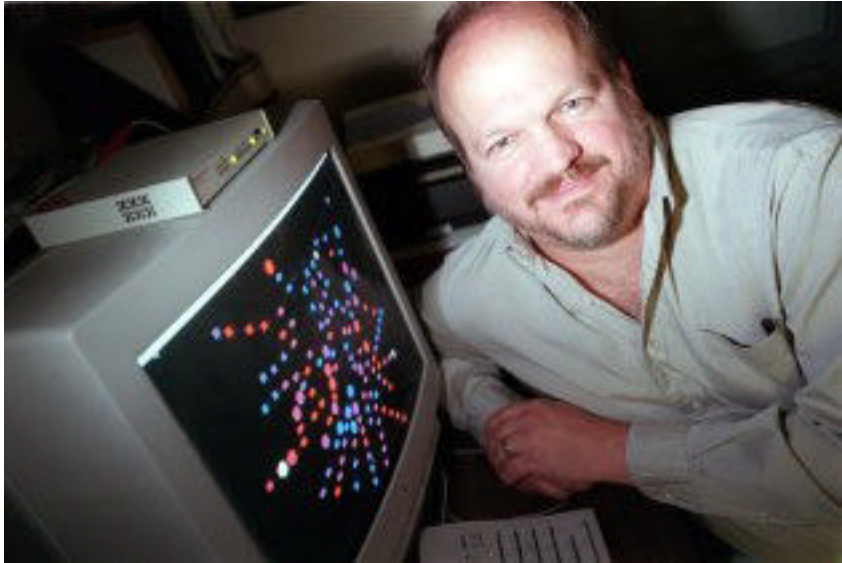
Most search engines rely on keywords or URLs -- uniform resource locators -- to cull the Web. But using simple keywords like "SUV" or "mileage" in most search engines results in hundreds of returns.

Researchers have been exploring the use of artificial intelligence in search engines to help reduce the number of irrelevant sites that are returned. Many of these more sophisticated search engines look at the number of times a word appears on a site -- in addition to keyword and URL information -- to help narrow the list of sites.

But Lexera uses conceptual representation -- the method in which humans learn -- to retrieve information, Burgess said. Conceptual representation stores information about Web sites in a string of concepts, rather than relying on keywords or URLs.

If you were to tell the story of "Little Red Riding Hood" to a friend, then repeat the story to another friend, it's unlikely you told it exactly the same to both. That's because you don't know the story word-for-word, but remember it based on ideas and concepts.

Conceptual representation works in much the same way. It "studies" each Web site using similarity algorithms to determine the ideas and concepts represented on each site, then makes inferences based on the information.



Curt Burgess, an associate professor of psychology at UCR and chief executive of Language Machines Inc. in Riverside, is the co-inventor of a speedy new search engine that uses artificial intelligence to track relevant sites on the Internet.  
Carrie Rosema / The Press-Enterprise

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Query Lexera for "mileage in sport utility vehicles," and the search engine looks for Web sites where those concepts are present, Burgess said. "When more than one search term is typed in (to Lexera), it looks for conceptual intersections," Burgess said. "Mileage in sport utility vehicles" most likely would return Web sites providing evaluative reports of various SUV models, he said.

Lexera's search services include an automated categorization engine that can build and maintain Web directories, such as a collection of sites dealing with a specific topic.

Lexera also has a customizable content filter that allows selective blocking of non-productive or inappropriate online material. The filtering feature might be useful not only for schools and libraries, but to control information available through corporate Intranets, Burgess said. The categorization and filtering features work using concepts, rather than keywords or a URL database, Burgess said.

Burgess had developed an earlier filtering program called NetCommand that used conceptual representation for word meaning. He had sought funding to launch NetCommand in March 1999, but wasn't successful.

In the meantime, Burgess and other members of Language Machines developed the technology that Lexera uses. The group has spent the past 14 months creating Lexera's technology, which in the prototype stage has examined more than 100,000 Web sites and "knows" the content of 10,000 sites, Burgess said.

Indeed, Burgess isn't new to the concept of searching for information over the Internet. An article he wrote about online computer searching was published in 1984 while he as a graduate student. And about half of his 60 published articles have been in the artificial intelligence field, including some involving artificial intelligence software and hardware.

Burgess' goal is to create a corporation using the Lexera name and to begin licensing its search engine service within 10 months. Within a year, he would like to create a Web portal to showcase Lexera's search services. The plan is to begin licensing Lexera's filtering technology within 18 months, he said.

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