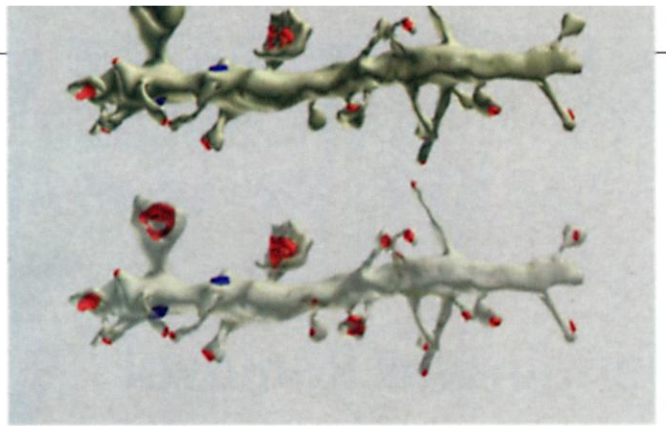


CREDIT: JOSEF SPACEK/CHARLES UNIVERSITY, CZECH REPUBLIC

COOL IMAGES

Anatomy of Memory

As you read this, chemical signals are zipping through your brain via structures like this snippet of a dendrite, spindly fingers that branch off from neurons and receive signals from other neurons at contact points called synapses (red and blue). The dendrites' thorny protrusions come in all shapes and sizes, and neuroscientists are busy trying to figure out what role these play in memory and learning. Researchers at Boston University created these dendrite reconstructions (about 9 micrometers long) by slicing rat hippocampus into thin sections, imaging them with an electron microscope, then reassembling the sections on computers. Their Synapse Web* site offers software for researchers also wishing to make reconstructions, along with a brain anatomy tutorial that zooms from micrographs of tissue slices and cells to virtual reality models of dendrites.

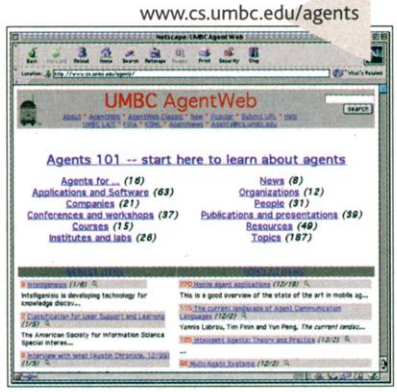
* synapses.bu.edu/index.asp

SITE VISIT

Talk to My Agent

Along with millions of human surfers, the Internet is crawling with so-called "intelligent software agents": computer programs that sift and retrieve useful information from cyberspace. One kind of "searchbot," for example, adds new Web pages to a pile probed by the search engine AltaVista. Other robots can be customized to tell a user only about, say, new items on *The New York Times* Web site.

www.cs.umbc.edu/agents



Computer scientists and others interested in the inner workings of these knowbots, infobots, chatterbots, and other critters of code can turn to AgentWeb, run by researchers at the University of Maryland, Baltimore County. The site isn't aimed at people who simply want to download an agent (there's no comprehensive list), but for pros it's packed with information recently reorganized like a Yahoo directory—a hierarchical, continuously updated listing of links. A section called Agent 101 lists books, tutorials, and other introductory material; pointers lead to ongoing agent R&D projects in academia and industry. For those who really want to get under the hood, there are codes of conduct and standards of 'bot behavior on the Web, as well as entries on various agent programming languages. Also included are links dear to every scientist's heart: which agencies are funding work on software agents.

NETWATCH

edited by JOCELYN KAISER

HOT PICKS

Lit hopping. It may sound like a virtual drinking game, but PubCrawler is actually a free alert service that keeps users abreast of new entries in PubMed and GenBank. You can even ask it to track papers from rival labs. www.pubcrawler.ie

Heavy breathing. When U.S. officials 3 years ago announced a clampdown on fine soot particles released into the air, Congress cried foul, arguing that too little was known about how the globs of metals, acids, and petrochemicals harm human health. This new database tracks research on particulate matter, probing everything from exposures to possible mechanisms for how the tiny particles may cause heart attacks. www.pmra.org

Life in the extreme. Check out tubeworms, giant clams, and other weird creatures dwelling near boiling hot deep-sea vents at this site, which follows an expedition off the west coast of Mexico from 13–20 January. Besides video sent across the Internet from the submersible *Alvin*, the site promises daily scientists' logs and background about the vents' intriguing chemistry and biology. www.ocean.udel.edu/deepsea

SITE VISIT

One Physicist's Sense of Snow

www.its.caltech.edu/~atomic/snowcrystals

In these winter months when people long for snow or begin to loathe it, what better Web excursion than a quick slide into the world of snowflakes, more properly known as snow crystals. Physicist Kenneth Libbrecht of the California Institute of Technology in Pasadena created the engaging Snow Crystals site a year ago to share his research on how crystals develop their intricate patterns. Fascinating pages describe Libbrecht's program to grow "designer snowflakes" at the tips of long needles of ice, made with the help of strong applied electric fields. Similar studies of the surface structures of crystals have commercial applications, such as in the controlled growth of thin diamond films, Libbrecht notes.

The site features a history of snow-crystal research, a user's guide for photographing snowflakes (hint: avoid melting them by catching them with a feather, not your finger), and a detailed primer on the physics of why snow crystals form columns, ferns, dendrites, and other geometrically pleasing forms. For instance, snowflakes owe their usually six-sided symmetry to the most stable configuration of ice crystals: hexagonal prisms. If that's not enough snow, you'll also find dozens of other chillin' links, from the National Snow and Ice Data Center to articles on the physics of precipitation. And if snow doesn't turn you on now, you may want to pay a return visit to this site on some humid July afternoon.

Send Internet news and great Web site suggestions to netwatch@aaas.org