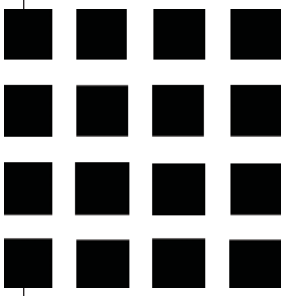
NetWatch

edited by Mitch Leslie

WEB TEXT

The Science of Sight

Do you see faint blobs where the white "avenues" cross in this diagram (below)? You're not losing your eyesight; you've simply fallen for the Hermann grid illusion, one of the tricks that help researchers deduce the workings of the visual system. For a clear view of how we see, check out The Joy of Visual Perception, an undergraduate-level Web text by professor emeritus of psychology Peter Kaiser of York University in Toronto, Canada. Students can start by focusing on physiology and anatomy, including the structure of the eye and the transmission of messages across the gaps between neurons. Other sections let us peer into subjects such as how we perceive contrast, size, motion, and distance.



The text also reveals the secrets behind a long list of fun and instructive illusions. The shadows on the Hermann grid, for instance, result from the arrangement of inhibitory and excitatory receptors in the retina.

www.yorku.ca/eye

TOOLS

Just the Right Words

Genome aficionados rely on the well-known BLAST search to find matches for a particular DNA sequence in gene databases. A site called eTBLAST from the University of Texas Southwestern Medical Center in Dallas lets you use the same idea to scan MEDLINE for germane articles. Enter a sentence or paragraph—say, from your latest paper—and you can search for abstracts with similar language. You can fine-tune the search by giving more weight to particular words. The results, delivered by e-mail, can take several minutes to arrive.

invention.swmed.edu/etblast/index.shtml

DATABASE

Where Eagles—and Sparrows—Dare

A male resplendent quetzal (*Pharomachrus mocinno*, above), whose iridescent plumage once adorned Aztec royalty, can sport tail feathers more than four times his body length. You'll find data on this Central American denizen and more than 10,000 other bird species at Avibase, a taxonomic clearinghouse hosted by the nonprofit organization Bird Studies Canada. Accounts cover all the world's avian species and provide the latest information on nomenclature, classification, subspecies, and conservation status, along with range maps at the country level. Visitors hungry for more can migrate to linked sites such as the U.K.-based BirdLife International, which offers details on threats to species.

www.bsc-eoc.org/avibase/avibase.jsp

RESOURCES

Find the True Path

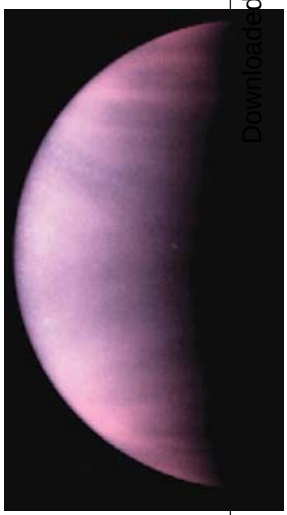
Whether you want a succinct statement of Zipf's law or a synopsis of the British Museum algorithm, visit the Dictionary of Algorithms and Data Structures from the National Institute of Standards and Technology in Gaithersburg, Maryland. Aimed at mathematicians and computer scientists, the site is packed with definitions, handy functions, descriptions of famous problems, and algorithms. According to Zipf's law, for example, a few words such as "a" and "the" are common, but most are rare. And the thorough but tedious British Museum algorithm involves checking all possible solutions to a problem one by one, beginning with the smallest. The listings include links to a wealth of backgrounders, Java applet demos, papers, and other resources. Readers can help build the site by filling in incomplete entries.

www.nist.gov/dads

EDUCATION

Space Q&A

What color is Venus? Did time really run more slowly just after the big bang? Are stars and galaxies made of dark matter lurking in the universe? Teachers, students, and space buffs can look up answers to these and other questions at Curious About Astronomy?, a Web site from Cornell University in Ithaca, New York. The site's crack team of mainly astronomy graduate students has already answered hundreds of reader queries. Submit your head-scratcher, and they'll try to respond within about a week. For example, pictures of Venus, such as this purple-tinted ultraviolet image highlighting cloud patterns (above), rarely show the planet's true colors. From space, Venus is yellowish-white because of its murky atmosphere, whereas from the surface, its rocks appear dull red.



curious.astro.cornell.edu/index.php

Send site suggestions to netwatch@aaas.org.
Archive: www.sciencemag.org/netwatch

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