IMAGES

Opening Doors of Perception

The two middle squares in this image appear to be different shades of gray, but they are actually the same. Researchers in the Perceptual Science Group at the Massachusetts Institute of Technology exploit such trickery to illuminate the workings of the visual system. The group's online tutorials provide some clever examples of how we can learn from deceptive appearances.

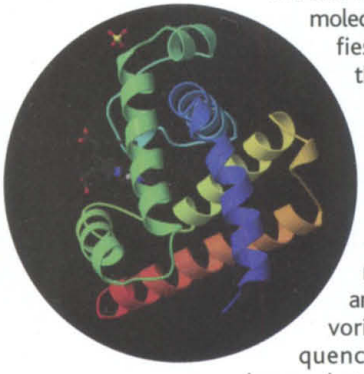
Simple animations explore 11 tricks of light. We might fall for the simultaneous contrast illusion above, for example, because cells in the retina inhibit their neighbors. Thus the interior square at left looks relatively light against the dark pattern, and the right one looks relatively dark against the light background. Check out other deceptions that involve shadows and oscillating ellipses. Or for the nitty-gritty on perception, read papers by lab members that probe the lightness illusions or present the basics of image processing.

www-bcs.mit.edu

DATABASE

Parse Protein Pedigrees

A new Web site from Hebrew University in Jerusalem aims to simplify the analysis of protein structure and function. Along with the usual sequence information, ProtoNet automatically clusters proteins by similarity, creating a family tree that allows researchers to compare individual proteins or related groups. For more than 100,000 proteins, the site holds a data card that lists each molecule's amino acid sequence, identifies functional regions, and charts the taxonomy of the organism it comes from. You can compare each protein to other members of its immediate family or climb up the tree to contrast different groups, which might help deduce the function of mystery molecules or tease out evolutionary trends. If you don't find your favorite protein here, submit its sequence to find out how it fits into known clusters.



www.protonet.cs.huji.ac.il/protonet/index.php

RESOURCES

Manual for the Material World

The nonstick coating Teflon has saved many hours of scrubbing pots—and maybe a few marriages—and you'll also find it in stents that prop open narrowed blood vessels. For more on Teflon and similar innovations, check out the A to Z of Materials, a free commercial site aimed at engineers and designers interested in "advanced materials," a category that includes new alloys, ceramics, and composites. Keep up on the latest developments in the field with news updates, a rundown of upcoming conferences, and features on new materials written by experts. The site also profiles thousands of materials, from zirconium-containing alloys that remember their shape to ABS fire retardant, a plastic used in everything from transformers to oven doors. Each entry lists the material's key properties such as density, hardness, and flammability and discusses its advantages and disadvantages.

www.azom.com

RESOURCES

Tour the Strongholds of Biodiversity

Evolution plays favorites. Only 25 small areas, known as biodiversity hotspots, boast nearly half of the world's plant species and more than one-third of its vertebrates. Conservationists treasure these havens of biodiversity because each one nurtures an abundance of unique species. Visit the hotspots with this new online atlas, which expands on an analysis published 2 years ago by Conservation International, based in Washington, D.C.

Packed with facts and figures, the atlas whisks you around the globe to places like California, Madagascar, West Africa, and the Atlantic coastal forests of South America, which host some 20,000 plant species. You can meet some of the novel organisms in places like New Zealand, home to flightless nocturnal parrots, rare ferns, crickets the size of mice, and this multilegged velvet worm (above). People are rapidly destroying habitat in the hotspots, and the site provides the latest on conservation measures and continuing threats. For example, to protect some New Zealand natives from ravenous invasive species, conservationists have transplanted all the remaining individuals to predator-free islands.

www.biodiversityhotspots.org/xp/Hotspots

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

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