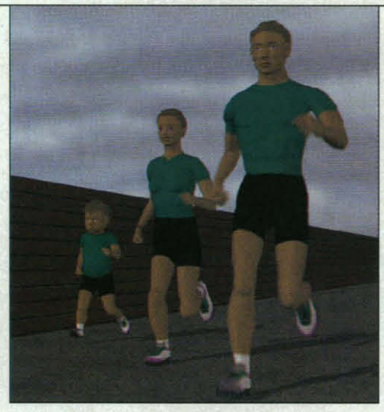
NETWATCH

edited by JOCELYN KAISER

COOL IMAGES

Moving Pictures

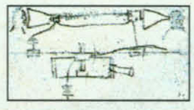


A somersaulting diver, cyclists swerving around an obstacle, a swishing basketball net: It's all fodder for computer animation experts at Georgia Tech's Graphics, Visualization, and Usability Center (GVU). Although some animators now take shortcuts like manipulating data recorded from human actors, even today, skilled experts in this field draw scenes frame by frame—a painstaking method used to make the movie *A Bug's Life*. GVU's Animation Lab has championed a third technique: They create computer models that "build on the physical principles" of moving things, says team leader Jessica Hodgins, such as the weight of a person's arm or the stiffness of a rope. Such animations might be used to create virtual environments for training emergency workers, for example; Hodgins's group has even debuted a few movies at international film festivals. Decide for yourself how closely the simulations approach reality at the group's site, which features flicks of everything from runners (like those above) to a skirt rippling in the wind.

www.cc.gatech.edu/gvu/animation

HOT PICKS

Warm spell check. If you want to know why scientists think 1998 was the hottest year in 6 centuries, visit this new Web primer on paleoclimate. The site discusses how data from tree rings, ice cores, corals, and sediments reveal climate trends over millennia and includes links to key papers. www.ngdc.noaa.gov/paleo/globalwarming/home.html



Belles lettres. Leaf through the scientific notebooks of Alexander Graham Bell at a new Library of Congress online archive of 1400 of the inventor's family papers. Included are aeronautical sketches, notes on deaf education, and Bell's lab jottings on how he tested the first telephone in 1876, shouting the famous words: "Mr. Watson—come here—I want to see you." memory.loc.gov/ammem/bellhtml/bellhome.html

Controlled chaos. Curious about the kind of math driving those cool fractal images? This Web primer on chaos and nonlinear dynamics explains it all, from "strange attractors" to Mandelbrot sets. The appendices are loaded with links to applied chaos groups, fractals, and software. hypertextbook.com/chaos

NET NEWS

Internet Prognosticators

Earlier this month, MIT's Sloan business school sealed up an Internet "time capsule"—filled with digital snippets such as Alan Greenspan's Senate testimony in January on Net stock mania, advice on finding kid-safe Web sites, and a page from the online auction eBay. The capsule, an encrypted corner of the Sloan Web site, will be opened in 5 years—an eternity in Web time. "One will marvel at how primitive some of these contents are," the Sloan site says. But it might be more interesting to check out how the following seers fare in their predictions (among several dozen stowed in the capsule) about what the Internet world will look like in 2004:

"The practice of human medicine will be revolutionized by the continual sensing of [an] individual's biochemistry, and communicating this information via the Internet to large diagnostic servers containing detailed genetic information and medical data."

—Charles Vest, president of MIT

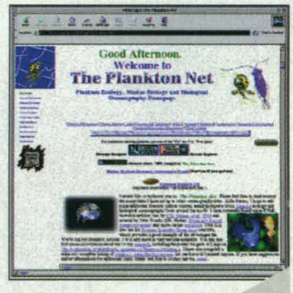
"The Internet holds the greatest promise humanity has known for long-distance learning and universal access to quality education. ... It offers the best chance yet for developing countries to take their rightful place in the global economy. You have only to look at the production of software in India. ... And so our mission must be to ensure access as widely as possible. If we do not, the gulf between the haves and the have-nots will be the gulf between the technology-rich and technology-poor."

—Kofi Annan, secretary-general, United Nations

SITE VISIT

Drop of Life

More than 100,000 species of tiny life-forms cavort in the world's rivers, lakes, and oceans, forming a mostly unseen web of life at the base of the aquatic food chain. The Plankton Net, run by zoology grad student Warren Currie at Ontario's University of Guelph, conveys some of the fascination researchers feel toward this underwater microworld.



www.uoguelph.ca/zoology/ocean/index.htm

Currie says he started the site 5 years ago as a way to stay in touch with other plankton researchers. Legions of them now tap the site's lists of experts and marine institutes around the world, as well as a catalog of job openings in marine biology, oceanography, and environmental science. Other links reach out to amateur plankton buffs: scuba sites, plankton and reef image galleries, and online advice about becoming a marine biologist. There are Web links on specific organisms, like rotifers, diatoms, and copepods. And in a multimedia section, visitors can become virtual limnologists, examining the species drifting and swimming in water samples from the Great Lakes.

By summer, Currie says, the site will be integrated with an online atlas being developed at Guelph that describes all the major players in the Great Lakes ecosystems, from plankton to loons and beavers.

Science ONLINE

If a picture is worth a thousand words, find out what your colleagues are talking about when they describe a form of kinesin, a motor molecule, lacking one of its two heads. This week, the supplemental data to the report on p. 1152 by Okada and Hirokaway includes a video of the crippled protein taking steps along a microtubule—overturning prevailing wisdom about how kinesin moves. www.sciencemag.org/cgi/content/full/283/5405/1152

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

CREDITS: (TOP) JESSICA HODGINS AND NANCY POLLARD, GVU CENTER, GEORGIA TECH