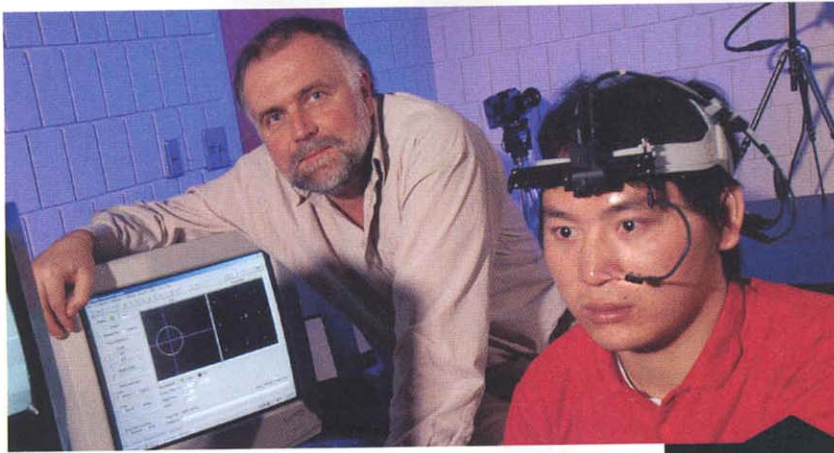


Bootstrapping Wavelets



SCIENTISTS love data, but often the best data is elusive. The way the eye moves when a patient is ill, for example, is different from when he is healthy. At the Georgia Institute of Technology in Atlanta, researchers have discovered how to extract more information from a single experiment by using a technique called Wavelet Sampling. Among other things, the technique can be used to remove environmentally generated background noise that would make it otherwise impossible to extract data.

EYES HAVE IT: Pupil diameter measurement data is hard to capture.

BREAKTHROUGH

Self-Cleaning Nanosensors

ONE of the limitations of nanostructures, sensors in particular, is that because of their small size they become easily clogged. At Pennsylvania State University in University Park, researchers have found a unique method of keeping nanosensors in working order. Tiny titania nanotubes are coated with a layer of palladium. The nanotubes underwent tests in which they were exposed to fatty acids, oil and even the particles from cigarette smoke. The dirtied sensors shed their contaminants with ease. Ironically, the one thing that did contaminate the nanotubes was a compound that most people use for clean-ups: WD-40. It's expected that this method will one day be used to keep fuel cell sensors clean.

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OUTDOORS

HUBBLE SEES THE DAWN OF TIME

Popular Mechanics

JUNE 2004

GARY W. MEEK/GEORGIA TECH (WAVELET SAMPLING); N.

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