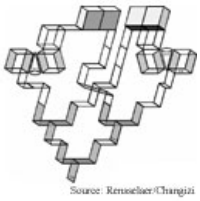
TRN Technology Research News

TRNmag.com

August 4/11, 2008

Seeing logic


Source: Rensselaer/Changizi

It turns out that you can compute just by looking at something, as long as the something is a visual representation of a logic circuit. A novel method of computing takes advantage of human visual perception... [more]

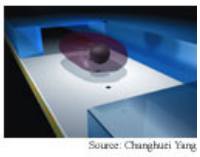
Software sees structure

Software that analyzes data sets determines the most appropriate data structure to use. [more]

Programming biology

A programming language for simulating biology makes it easier for scientists to create computer models of protein molecules, whole organisms and everything in between. [more]

Tiny microscope goes with the flow

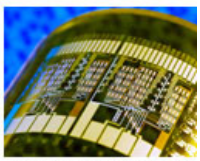

Source: Changhuei Yang

Position a series of microscopic pinholes over digital camera pixels and you have a microscope-on-a-biochip without the bulky lenses of traditional microscopes. [more]

Rubber biochips get sophisticated

Pretreat portions of the rubber sheets that will form the channels and containers of disposable biochips, and after the biochips are made you can put microscopic pores, patterns and electrodes on channel and container side walls. [more]

Cut nanotubes speed flexible circuits


Source: Beckman Institute, U. of Illinois

Cut single layers of overlapping, randomly oriented carbon nanotubes into strips and you've got an inexpensive route to high-performance, flexible electronics. [more]

FEATURES

View from the High Ground

Email conversations with researchers in high places.

How It Works

Get the nitty-gritty on nanotechnology, biochips, self-assembly, DNA technologies, quantum cryptography, and more.

Last Issue

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RESEARCH WATCH

August 5 th, 2008

The power of perception
An item in the current TRN issue about computing via visual perception has me wondering if the method could be adapted to take advantage of one of the great strengths of the human brain: pattern recognition.
[more]

July 30th, 2008
Nanotech poised to pull in the bucks

June 24th, 2008
North Pole melt

June 9th, 2008
Changes to TRN

"Physics is to the rest of science what machine tools are to engineering. A corollary is that science places power in our hands which can be used for good or ill. Technology has been abused in this way throughout the ages from gunpowder to atomic bombs."
- John Pendry, Imperial College London

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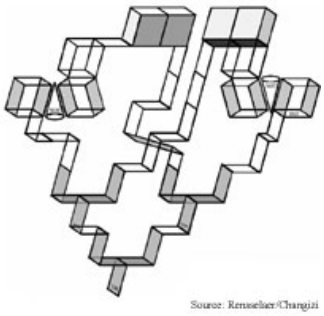
The Latest Technology Research News

Seeing logic

It turns out that you can compute just by looking at something, as long as the something is a visual representation of a logic circuit. A novel method of computing takes advantage of human visual perception by representing logic circuits as drawings that lead your eyes to perceive the correct output.



Source: Rensselaer/Changizi

The scheme includes NOT, OR and AND logic gates -- the basic building blocks of computer logic. The gates are represented as drawings with shaded boxes that appear to tilt either toward or away from the viewer. The two orientations represent 1 and 0 in binary logic. Following a drawing from input to output forces your perceptual system to see the output box in the correct orientation.

If more complicated logic circuits can be represented this way, the method could be used to let people solve logic problems simply by looking at them. It could also help people learn logic.

Research paper:
Harnessing Vision for Computation
Perception, July 2008

Researcher's homepage:
Mark Changizi

Further info:
View From The High Ground: USC's Michael Arbib -- Arbib is an authority on perception

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