

Displays of a Different Stripe

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Displays drain more power than any other component of a handheld device, a problem that will only grow as mobile devices incorporate higher-definition graphics. One way to wring greater brightness from every watt is by providing visual information in a form corresponding to the processing powers of the human eye and brain, a strategy that requires engineers to study and mimic biological systems.

Clairvoyante, Inc., a California designer of display technologies, proposes new methods of rendering images that conform better to the human visual system's method of handling color, on one hand, and the definition of edges, on the other.

These methods, which grew out of earlier work at Eastman Kodak and other companies, account for the fact that two of the eye's three kinds of color receptors--those for red and green--do all the heavy lifting in finding edges. That is why they predominate over the third kind of receptor--blue--by a factor of about 30 to 1. Clairvoyante's system does much the same, forming "vital pixels" from a mosaic of color subpixels in which the blue elements are much reduced in number.

The system employs not merely a different pattern of color subpixels but also lights them according to sophisticated algorithms that provide the eye with no more information, at any given point, than it can use profitably. The best results come from high-definition displays, particularly those fed by some of the more sophisticated image-compression standards now in use.

A number of leading electronics manufacturers have announced that they are working with the system. Clairvoyante expects it to show up in consumer products by the end of this year.

Source: IEEE Spectrum Magazine

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