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Customized Briefing for Dr. Ilesanmi Adesida

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Leading the News

Illinois engineers design curved, eye-shaped camera.

The [Chicago Tribune](#) (8/7, Manier) reports, "Drawing inspiration from the simple design of the human eye, Illinois engineers have invented a new kind of eyelike camera." While "[b]ionic eyes based on the design are not yet on the horizon,...other teams are studying how to get digital signals into the brain's vision centers, and the new camera could be useful in such efforts."

The U.K.'s [Daily Mail](#) (8/7, Dolan) points out that the new camera "can reproduce human vision," according to research published in the journal *Nature*. The camera, developed by researchers from Illinois University and Northwestern University, has "a curved detection surface" that "copies the effect of light from a subject hitting a curved human retina, which turns it into images by sending messages along the optic nerve to the brain." According to its inventors, this "is a vast improvement on the flat sensors used in digital cameras at the moment." The curved detection surface allows "the device [to] capture sharper images without distortion," and provides "a better field of view, as the human eye does."

[New Scientist](#) (8/7, Kleiner) explains that the researchers "built their hemispherical electronic eye by first using conventional photolithography to build silicon photodiodes 500 micrometers square and one micrometer thick. These were then wired into a flexible 16-by-16 array using chromium and gold." Next, the team "created a one-cm-wide hemisphere out of a stretchy plastic, and stretched it into a flat surface." Under the effect of van der Waals forces, "[t]he silicon squares stuck to the stretched plastic,...which was then allowed to spring back to its original hemispherical shape." Then, "[a]s the array took its new form, the photodiodes packed together tightly, and the connecting wires arced away from the surface." This "reformed array was then glued to a curved glass surface, and a conventional lens attached." The camera resembles "a human eye in construction, with light entering the lens from the front, and passing to the curved 'retina' containing the matrix of photodiodes behind." [Scientific American](#) (8/6, Minkel) also covered the story in its 60-Second Science blog.

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