



Robots Could Gain Artificial Eye That ‘Sees’ Like Human

The long sought-after invention of an artificial eye could be much closer, and if completed, would completely transform robotics, as well as human implants that could be connected to the optic nerve to feed signals into the brain. □ TN Editor

Scientists have developed an artificial eye that could provide vision for humanoid [robots](#), or even function as a bionic eye for visually impaired people in the future.

Researchers from the Hong Kong University of Science and Technology built the ElectroChemical Eye - dubbed EC-Eye - to resemble the size and shape of a biological eye, but with vastly greater potential.

The eye mimics the human iris and retina using a lens to focus light onto a dense arrays of light-sensitive nanowires. Information is then passed through the wires, which act like the brain’s visual cortex, to a computer for processing.

During tests, the computer was able to recognise the letters 'E', 'I' and 'Y' when they were projected onto the lens.

The artificial eye could in theory be connected to an optic nerve to relay information to a human brain, the researchers said, while also improving camera-based eyes currently used on robots.

“Biological eyes are arguably the most important sensing organ for most of the animals on this planet,” the researchers wrote in a paper describing the breakthrough.

“Mimicking human eyes, artificial vision systems are just as essential in autonomous technologies such as [robotics](#). Particularly for humanoid robots, the vision system should resemble that of a human in appearance to enable amicable human-robot interaction, in addition to having superior device characteristics.”

The proof-of-concept device currently has a low resolution, as each of the 100 nanowires used in its construction only accounts for one pixel.

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