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Fake nose actually smells

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LONDON - A group of U.S. researchers have developed an artificial nose that detects scent better than the real thing.

The technology, called "smell-seeing," detects the colour changes that occur when chemicals are exposed to substances that emit odors.

The technique uses an array of vapour-sensitive dyes called *metalloporphyrins* — molecules that bind metal atoms. Metalloporphyrins are closely related to hemoglobin, the red pigment in blood, and chlorophyll, the green pigment in plants.

The array is made by marking a piece of paper, plastic or glass with a series of tiny dots using different dyes.

An ordinary flatbed scanner or an electronic camera is used to scan the array before and after it is exposed to an odor-producing substance. The before image is subtracted from the after image to get a pattern that shows the colour change.

Scientists can then use the pattern to identify what chemical compounds were added by comparing the pattern to a library of colour fingerprints, therefore enabling them to identify the substance the array was exposed to by its scent.

Kenneth Suslick and Neal Rakow, both chemists at the University of Illinois, say their artificial nose is 10 to 100 times more sensitive than the human nose for many compounds.



The potential for the technology is huge. Some possible applications include food companies using the technology to detect flavourings or spoilage, police using it to detect illegal drugs, or safety inspectors using it to detect and monitor poisons or toxins in workplaces that use dangerous chemicals.

The research appears in the latest issue of *Nature* magazine.

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