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Art as Visual Research: 12 Examples of Kinetic Illusions in Op Art
Art and neuroscience combine in creating fascinating examples of illusory motion

By Susana Martinez-Conde and Stephen L. Macknik



Courtesy of Akiyoshi Kitaoka

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This is the fifth article in the [Mind Matters](#) series on the neuroscience behind visual illusions.

Scientists did not invent the vast majority of visual illusions. Rather, they are the work of visual artists, who have used their insights into the workings of the visual system to create visual illusions in their pieces of art. We have previously pointed out in our essays that, long before visual science existed as a formal discipline, artists had devised techniques to “trick” the brain into thinking that a flat canvas was three-dimensional, or that a series of brushstrokes in a still life was in fact a bowl of luscious fruit. Thus the visual arts have sometimes preceded the visual sciences in the discovery of fundamental vision principles, through the application of methodical—although perhaps more intuitive—research techniques. In this sense, art, illusions and visual science have always been implicitly linked.

It was only with the birth of the op art (for “optic art”) movement that visual illusions became a recognized art form. The movement arose simultaneously in Europe and the U.S. in the 1960s, and in 1964 Time magazine coined the term “op art.” This style became hugely popular after the Museum of Modern Art in 1965 held an exhibition called “The Responsive Eye.” In it, op artists explored many aspects of visual perception, such as the relations between geometrical shapes, variations on “impossible” figures that could not occur in reality, and illusions concerning brightness, color and shape perception. But “kinetic,” or motion, illusions drew particular interest. In these eye trick, stationary patterns give rise to the powerful but subjective perception of (illusory) motion.

The accompanying slides illustrate several works of art in which objects that are perfectly still appear to move. Moreover, they demonstrate that research in the visual arts can result in important findings about the visual system. Victor Vasarely, the founder of the op art movement, once said, “In basic research, intellectual rigor and sentimental freedom necessarily alternate”. Some of the illusions in this month’s slide show have been created by op artists; some by vision scientists honoring the op art tradition. But all of them make it obvious that in op art, the link between art and illusory perception is an artistic style in and of itself.

Slide Shows: Op Art Illusions

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