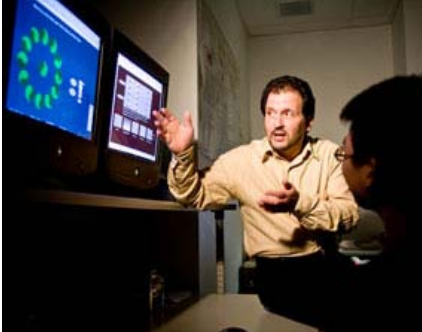


Visual illusion wins international competition



Professor Art Shapiro in his laboratory.

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By Sam Alcorn

LEWISBURG, Pa. – Art Shapiro has done it again.

He and a team of researchers that includes two Bucknell University graduates won first place in this year's international visual illusions contest. (Illusions created in his laboratory also won first place in 2005 and third place in 2007.)

The nifty new illusion – called the Break of the Curveball – may help to explain why batters in baseball can have so much trouble hitting the pitch.

See the animation [here](#).

Working with Emily Knight and Robert Ennis, both Class of 2008 graduates, and Zhong-Lin Lu, director of the Laboratory of Brain Processes at the University of Southern California, Shapiro developed an illusion that shows a spinning ball. When watched directly, the ball moves in a straight line. But when the ball is seen out of the corner of the eye, the spin of the ball fools the brain into thinking that the ball is sharply curving.

That may be the reason why curveball pitches are so tough to hit.

"In baseball, a curveball creates a physical effect and a perceptual puzzle. The physical effect – the curve – arises because the ball's rotation leads to a deflection in the ball's path," said Shapiro, who is an associate professor of psychology. "The perceptual puzzle arises because the deflection is actually gradual but is often perceived as an abrupt change in direction – the break.

"Our illusions suggest that the perceived 'break' may be caused by the transition from the central visual system to the peripheral visual system. Like a curveball, the spinning disks in the illusions appear to abruptly change direction when an observer switches from foveal to peripheral viewing," said Shapiro.

In this year's contest, an Israeli team took second place and a post-doctoral researcher at Harvard University won third.

The contest, held in Naples, Fla., this year, is part of the Vision Sciences Society's annual meeting. Ten finalists are selected by an international panel of judges. Following presentations at the conference, attendees vote for the best three.

The top three winners received a "Guido" trophy, designed by the Italian sculptor Guido Moretti.

"The contest is a celebration of the ingenuity and creativity of the world's premier visual illusion research community," said the society. "Visual illusions are those perceptual experiences that do not match the physical reality. Our perception of the outside world is generated indirectly by brain mechanisms, and so all visual perception is illusory to some extent. The study of visual illusions is therefore of critical importance to the understanding of the basic mechanisms of sensory perception, as well as to cure many diseases of the visual system."

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