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Gravity-defying illusion wins international contest

Barrow researchers use illusions to probe how we think

A new amazing illusion proves that defying gravity may be as simple as your point of view.

At the sixth annual international Best Illusion of the Year Contest, first place went to a mind-boggling illusion called "Impossible Motion: Magnet-Like Slopes." The entry submitted by Koukichi Sugihara, a mathematical engineering professor at Meiji University in Japan, challenges the human visual system and brain to believe that a ball can roll uphill. The illusion shows that the brain would rather believe this impossibility than conclude the incorrect point of view. The illusion is available at www.illusioncontest.neuralcorrelate.com.

The popular illusion contest is lead by two visual neuroscientists at Barrow Neurological Institute at St. Joseph's Hospital in Phoenix. Dr. Susana Martinez-Conde and Dr. Stephen Macknik launched the contest six years ago as part of their ongoing research into the human brain's relationship to perception.

"As scientists and medical researchers, we learn from these visual illusions every year. The knowledge that we will eventually get from studying this illusion may be applied throughout our research and far beyond the field of visual neuroscience," says Martinez-Conde, who heads the Laboratory of Visual Neuroscience at Barrow.

The contest results were announced this month during the annual Vision Sciences Society meeting, where more than 1,000 attendees voted on the finalists. Sent from around the world, this year's 83 entries included illusions from artists, academics, scientists, and the mathematical engineer from Japan who took home first place. Second place was won by Bart Anderson from the University of Sydney, Australia, and third place by Jan Kremlacek from Charles University in Prague, Czech Republic.

Macknik who heads the Laboratory of Behavioral Neurophysiology at Barrow says the scientific explanation of the illusion may lie in how we perceive perspective.

"The phenomenon of perspective is one of the most powerful overriding rules of visual perception", suggests Macknik. "Our brains take it as gospel that when the edges of an object like a ball track or a support column don't converge, those elements must run straight up from the ground. That's not necessarily so, as this illusion shows. Here, the support columns and ball tracks are deformed so that they look squared-up from a certain perspective. The effect is so powerful that your brain would rather believe the wooden balls magnetically attract each other and defy gravity, than the reality that the architecture is playing tricks with perspective."

Martinez-Conde and Macknik have a bold and unusual scientific approach to understanding perceptual puzzles and recently have been working with several well-known Las Vegas magicians to help advance science's understanding of the relationship between vision and the brain.

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