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Illusions of grandeur

By [Kristen Andresen](#)

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Think seeing is believing?

Think again.

Alan Stubbs teaches many important lessons in his art and psychology classes at the University of Maine, but the most crucial may be this: Don't believe your eyes.

Stubbs should know. He long has been fascinated with optical illusions, and in recent years he has used new media tools and techniques to design his own, which he uses in his popular perceptions course. One of these illusions made the top 10 in the international Best Visual Illusion of the Year Contest, sponsored by the Neural Correlate Society and held in Florida.

"I'm excited by it - just the response," Stubbs said on a recent morning at UM's new media lab. "To actually be in Florida, it was almost like a Miss America thing."

These contestants weren't trying to woo the judges, though. They were trying to fool the judges. Well, their eyes anyway. According to contest literature, the event is "a celebration of the ingenuity and creativity of the world's premier visual illusion research community. Visual illusions are those perceptual experiences that do not match the physical reality."

Take, for example, those 3-D posters that used to be so popular. If you let your eyes go into soft-focus mode, a tree or a teddy bear would suddenly pop out from a patterned background. Many of us have seen the old woman-young woman illusion - if you look at it one way, it's a drawing of a lovely young woman with a plumed cap. If you shift your view, the profile of a haggard old lady appears.

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Alan Stubbs, a psychology professor and assistant art professor at the University of Maine, sits with some of his optical illusions, which are created digitally. Some of his optical illusions (below) utilize an effect called "dynamic luminance." The center of white appears to get brighter and dimmer as the viewer moves toward or away from the image. (Bangor Daily News/Kate Collins)

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Unlike these illusions, Stubbs' designs play with the perception of light, darkness and contrast. His winning image, a take on an effect called "dynamic luminance," features alternating red and blue triangles that taper inward like bicycle spokes. At the center, a blurred circle of white appears to get brighter and dimmer as the viewer moves toward or away from the image.

The explanation is relatively simple: People always judge color in context. A gray square will appear darker against a white background than it will against a dark background, even if the squares are the same shade of gray.

In an August article that Stubbs wrote for High Resolution magazine, he describes how an effect called "mach bands" plays with the idea of brightness stimuli. The accompanying image shows a left-to-right gradient that goes from dark to light. At the transition point, a dark band occurs on one side, a glowing white band on the other. Neither band is "really there." It's all in the viewer's head.

"It's actually a neural thing, an excitation," Stubbs explained. "OK, it's an illusion. But it's actually something that helps us distinguish borders."

His quest to fool the eye - and the brain - began while teaching his perceptions class, but his fascination with images stems from his passion for photography. Stubbs is renowned for both his artistic photographs and his large-format printing techniques.

Though his illusions stem from traditional models, including "mach bands" and dynamic luminance, he uses his artistic vision to discover new aspects. He constantly experiments with colors to see how they affect the image. He creates many of his illusions using Adobe Photoshop, and he has found that some images work only on a computer screen while others hold up on paper, as well.

"One thing that's key with a lot of my research is serendipity," he said. "Traditionally, you read something, form a hypothesis and test it. A lot of my research, whether in science or art, if you just muck around, something interesting happens."

Much of his research begins with simple curiosity - what if the circle at the middle of the dynamic luminance effect were changed into a butterfly shape? Would it hold up? And what would happen if the background were orange instead of black?

Chances are, something interesting. And beautiful. Regardless, you won't believe your eyes.

"For me, it's a double interest," Stubbs said. "It's kind of artistic, in that I approach these the same way as photography. But then again, I don't see any difference between art and science."

To view Alan Stubbs' illusions, visit www.hutchinsoncenter.umaine.edu/

[perceive/](#). For information on the Best Visual Illusion of the Year Contest, visit <http://illusioncontest.com>.

neuralcorrelate.com.

BANGOR DAILY NEWS PHOTO BY KATE COLLINS

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University of Maine, sits with some of his optical illusions, which are created digitally. Some of his optical illusions (below) utilizes an effect called "dynamic luminence." The center of white appears to get brighter and dimmer as the viewer moves toward or away from the image.



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