**Alan Litke**

Professor of Physics, University of California, Santa Cruz

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The human eye, well, the eye has a pixel detector which biologists call the “retina” which lines the backside of the eye, and the outside world gets focussed onto this very thin piece of neural tissue. This is an amazing tissue, it’s not a simple digital camera - it’s a very, very sophisticated digital camera which doesn’t give one image to the rest of the brain, it actually gives about two dozen independent images, and I’ll show you some of these independent images. The brain then has to collect these two dozen images and put them together to give us  our visual perception. Some of which is conscious and some of which is subconscious. So, the output of the miraculous digital camera, biological pixel detector - the retina - the output goes on a “cable” which is called the “optic nerve”, and that brings information to the relay station, what biologists call a “lateral geniculate nucleus”, and then to the back of the brain, to the visual cortex. And here we see an expanded view of the eye and the retina, so the outside world gets focussed by the cornea and the lens on this very thin piece of tissue - the retina. The output signals from the retina go on the output cables of individual neurons which the biologists call axons. And those axons are collected in this piece of the retina which is used to form the optic nerve. And the centre of the retina is called the “fovea” and you see there is a little indentation. So, here is the biological pixel detector, the retina.

There are rods and cones, the photo receptors, that convert the visual image into electrical signals. These signals get processed in 3 different, very sophisticated layers, in the neural tissue, horizontal cells, bipolar cells and amacan cells, - there is tremendous processing going on of the visual image done by the neural system, leading to the output cells of the retina, which are called the retina-ganglion each of these ganglion cells has an output cable – an axon and the collection of these output cables form the optic nerve, that brings all this information in a very amazing way to the brain of the animal. -

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