“Visual perception is an illusion”.
The effect of light and illumination on visual perception.

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Abstract
An individium cannot explain his visual perception to another individium. To show other people how we see, we need illuisons. That is the reason why scientific illusions are created.

Visual perception itself is created in the brain. The stimulation in the retinal cells is only the starting point. The brain builds its individual World. His world is full of illusions. The main reason for that is, that the brain needs a world with borders inside the perceptual capacity of the eye, photoreceptors and neurons. So, the

The different and illusional aspects of vision and visual perception will be shown with examples of visual illusions.

Keywords: keyword; keyword; keyword; keyword; keyword; keyword; keyword; keyword; keyword; keyword;.

INTRODUCTION
Until today science couldn’t define what vision (visual perception) is. The visual perception is subjective. Nobody can tell anyone else objectively, how he sees. So to show other people how one sees, scientific visual illusions are made.

EXPOSITION
In human visual perception we have always visual illusions. One of them is the blind spot. The blind spot is on 15° temporal (on the ear side) fixing point of the visual field. The blind spot is oval and has a diameter of 5-7°. One thinks that we don’t perceive it, because we have both eyes open.

Please look at Figure 1a. Blind spot would be seen as black*. Please close the left eye with your left hand. Do you see any black circle 15° to the temporal of the visual field.

* figures 1b, 1c and 1d.

In illusions one can show other people, what he sees different from the physical reality. The illusions today are created not for fun, but to show scientifically how one sees.

Visual perception is three dimensional is dynamic. But in writing or printing we can use only two dimensional images. So in this paper only illusions with this properties will be shown.

Alhazen
Alhazen is a scientist who lived about 1000 years ago. He is called the first scientist in Western World because his knowledge was made by scientific experiments, which were reproducible.

He wrote the first book about optics in the world: “Kitab al Manazir”.

One of the findings of Alhazen is, that we need eye movements to have visual perception. Today we know that if the eyes stay open without any movement, the photoreceptors and neurons in the retina are overflooded with sensation in a short time (within seconds) and the visual perception becomes less.
Please fixate on the black point in the center without blinking for 15-20 seconds. One can perceive that the colored circles are fading to nil. At the end the moon illusion can be seen only the background.

**Figure 2.**

Alhazen showed also that we need also attention, comparison and memory for visual perception. In the moon illusion he showed why we see the moon bigger at horizon and smaller at the zenith.

**Figure 3a ve 3b.**

In the horizon there are objects to compare with the moon. And at the zenith there are no objects to compare. That is the reason why we see the moon smaller at the zenith than at the horizon.

The illusions which rely on visual perception are used in technical machines

Alhazen showed also that we have need some time to perceive things. We cannot see object flying around us, which move within miliseconds. It is non-existent to us. We need to see them at least 50 miliseconds. So there must be 20 images a second. In cinema, TV, computer screens there is a refreshing rate of 24 or more frames a seconds, so that we perceive there motion instead of single frames.

In the 19th century von Helmholtz showed that the eyes optical quality is not good enough for such an excellent vision. To have this extraordinary visual perception unintentional inferences.

Contrast perception, perception of nonexistent motion and other nonexistent perception can be shown at many illusions, which will be shown in the presentation.

**CONCLUSION**

Humans brain makes a virtual visual world from the perception of the eyes. The explain these virtual world we use the illusions.

**REFERENCES**
