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Will intelligent robots replace humans some day? A team of scientists from Indian Institute of Science, Bengaluru, believes it won't happen anytime soon.

This is because even the best computer algorithms can't do simple visual tasks like recognizing distorted letters. It is a known fact that the eye works much like a camera with neurons leaving the retina carrying information about the image to visual areas in the brain. Now, IISc scientists have thrown more light on what makes our brain so good in its vision mechanism.

Dr SP Arun and his team, studying biological vision at the Centre for Neuroscience, IISc, ventured to find how the vision mechanism in humans sifts between relevant and irrelevant information from the various images that fall on the retina. "One object can produce different images due to changes in lighting, size, position and three-dimensional rotations. Neurons in the visual cortex compute this. Flashing an image results in neural activity that builds up and drops over a period of time. During the build-up of the response, neurons are sensitive to irrelevant variations such as changes in the view point of an object. But during the drop, neurons ignore irrelevant stimuli," said Arun.

Ratan Murty, another member of the team, said, "This transition has never been shown before, and our study shows that neurons in this area perform this important computation dynamically over time," he added.

The team performed recordings from the inferior temporal cortex of the monkey brain -an area crucial for visual object recognition.Neurons leaving the retina carry information about the image to the visual areas in the brain, which occupy as much as 40% of the total real estate in the brain.

"Our experiments will help understand viewpoint invariance better, something that the brain has learned to solve over the course of evolution. Robots may beat us at algorithmic games like chess but they are nowhere near human competence in real-world tasks like vision," added Arun.