

Researchers discover the way we see an image depends on 'where we are'

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A study conducted by a Fight for Sight-funded researcher has discovered that the way we see an image changes depending on where we are. The results were published in *Nature* on 11 September 2018.

Professor Matteo Carandini, along with researchers at University

College London, created a [virtual reality environment](#) involving two visually identical rooms in two different positions. Researchers used these rooms to investigate the visual and [navigational systems](#) of mice.

Researchers had expected to see visual neurons responding in the same way in the two visually identical rooms. Instead, the results showed that the same image can be seen differently based on [physical location](#). They found that the visual neurons responded solely or more strongly in one room than the other.

Vision plays a vital role in navigation. It was previously believed that the [brain](#) had two separate systems that worked independently, one for vision and one for navigation. These results, instead, demonstrate that the visual system is profoundly influenced by the navigational system.

Professor Carandini, GlaxoSmithKline/Fight for Sight Chair of Visual Neuroscience at UCL, said, "These findings challenge our previous understanding of how the brain uses vision to solve the complex problem of knowing where we are to help navigation. We thought that different areas of the brain were specialised to do specific things; for example, taking information and passing it to the next area, very much like an assembly line. Instead, this research has found that areas are working together as a team to process navigational information."

Dr Neil Ebenezer, Director of Research, Policy and Innovation at Fight for Sight, said: "This discovery is fascinating and provides a better understanding of how these systems interact to enable the brain to process navigational information. It is important to build our knowledge and improve our understanding of how the eye and brain work to gain new insights that could enable us to prevent or treat [sight loss](#) in the future."

More information: Aman B. Saleem et al. Coherent encoding of

subjective spatial position in visual cortex and hippocampus, *Nature* (2018). [DOI: 10.1038/s41586-018-0516-1](https://doi.org/10.1038/s41586-018-0516-1)

Provided by Fight for Sight

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