

# New study points to universal code in our brains for what we find beautiful

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Architecture, landscape or art -- sights that we like evoke similar patterns in the DefaultMode Network. Credit: Marilyn Abigail Perkins

Using functional magnetic resonance imaging (fMRI) to monitor subjects' brain activity as they were shown images of art, architecture or natural landscapes, the team found that in the visual parts of the brain, these different types of images led to very different patterns of activity,

even across images all judged by subjects to be aesthetically pleasing.

Not so for other parts of the [brain](#). Within the [default mode network](#), regions of the brain that are typically active during inward contemplation, the images that people reported as aesthetically appealing led to remarkably similar patterns of [brain activity](#) across art, buildings and landscapes. This suggests the default mode network, or DMN, may contain a universal code for aesthetic appeal.

"We don't know yet if DMN actually computes this representation," said Edward Vessel of the Max Planck Institute for Empirical Aesthetics in Germany and leader of the team, which originally launched from New York University. "But it clearly has access to abstract information about whether we find an experience aesthetically appealing or not."

As the DMN is normally silent when a person engages with the outside world, it is highly unusual that it contains information about the aesthetic appeal of visual experiences.

The default mode network is at the center of much of the team's work. Known as the brain's place for self-reflection, mind-wandering and imagination, the DMN, as they discovered, has an important role in how we respond to beauty, selectively engaging with highly moving visual art.

Despite being highly personal, aesthetic experiences can be extremely powerful, even life-changing events.

A better understanding of such experiences may lead to insights that could aid learning and improve individuals' sense of well-being. It may also lead to a more coherent understanding about how different types of pleasures interconnect in higher order cortical regions and complex human experiences, according to Gabrielle Starr at Pomona College, one of the study's coauthors.

The researchers anticipate that future research will experiment with other modalities/stimuli such as music or poetry and explore whether DMN responds similarly when we find a song or a poem beautiful.

**More information:** Edward A. Vessel et al, The default-mode network represents aesthetic appeal that generalizes across visual domains, *Proceedings of the National Academy of Sciences* (2019). [DOI: 10.1073/pnas.1902650116](https://doi.org/10.1073/pnas.1902650116)

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