

# Study provides first evidence of common brain code for space, time, distance

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A new Dartmouth study provides the first evidence that people use the same brain circuitry to figure out space, time and social distances.

The findings, which help reveal how our brains organize information and create our perspective of the world, appear in the [\*Journal of Neuroscience\*](#).

The researchers looked at whether there is an overlap, or a common mechanism, in the [brain areas](#) used to represent time, space and social distances. They used fMRI to analyze the [brain patterns](#) of participants while they viewed objects photographed at different distances, viewed photos of friends or acquaintances and read phrases referring to the immediate or more remote future.

"The results showed that the same brain patterns that decide whether something is physically near to us versus far away also decide whether we are thinking about the near or distant future or seeing a friend versus an acquaintance," said senior author Thalia Wheatley, an associate professor of Psychological and Brain Sciences. "In other words, there is a common neural code for space, time and social distance. Near, now and dear (friends) activate one pattern and far, later and [acquaintance](#) activate a different pattern.

"There are interesting implications for this," she said. "For one, it suggests why we use distance metaphors to talk about time and friendship – for example, close friends and [distant relatives](#). These

metaphors stick because they echo the very neural computations involved. Our brains use distance to understand time and social connectedness. This mapping function may have a particularly important benefit in determining whether we care enough to act: Is something happening here, now, to someone I love? Or over there, years from now, to a stranger?"

Provided by Dartmouth College

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