

Scientists probe connection between sight and touch in the brain

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Shakespeare famously referred to "the mind's eye," but scientists at USC now have also identified a "mind's touch."

USC scientists have discovered that as you look at an object, your brain not only processes what the object looks like, but remembers what it feels like to touch it as well. This connection is so strong that a computer examining data coming only from the part of your brain that processes touch can predict which object you are actually looking at.

Building on previous work demonstrating a comparable link between the visual and auditory sectors of the brain, Antonio and Hanna Damasio's research group at the USC Dornsife Brain and Creativity Institute, used magnetic resonance [brain scans](#) and specially programmed computers to explore how memory and the senses interact.

The findings appear in the September issue of the journal [Cerebral Cortex](#). The article, authored by Kaspar Meyer, Jonas Kaplan, Ryan Essex, Hanna Damasio and Antonio Damasio, was highlighted as Editor's Choice.

The Damasio team asked a group of participants to watch five video clips of hands touching various objects, then used functional [magnetic resonance imaging](#) (fMRI) to scan the part of the participants' brains that is responsible for processing touch sensations. When a specially programmed computer was given the data generated by the scan, the computer was able to accurately predict, just based on how the "tactile" part of the cerebral cortex had reacted, which of the five video clips the participant had been seeing.

"When asked to imagine the difference between touching a cold, slick piece of metal and the warm fur of a kitten, most people admit that they can literally 'feel' the two sensations in their 'mind's touch,'" said Kaspar Meyer, the lead author of the study.

"The same happened to our subjects when we showed them video clips of hands touching varied objects," he said. "Our results show that 'feeling with the mind's touch' activates the same parts of the brain that would respond to actual touch."

Human brains capture and store physical sensations, and then replay them when prompted by viewing the corresponding visual image.

"When you hold a thought in your mind about a particular object, that is not just mental fluff. It is rather a detailed memory file that is being revived in your [brain](#)," Antonio Damasio said.

Provided by University of Southern California

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