

To be able to operate in the world around us, we need to store visual information for further processing. Since we are able to memorize a vast array of visual scenes (photographs of the outside world), it is still an open question of how we represent these scenes in memory. Research shows that perception and memory for visual scenes is a complex problem that requires contribution from many subfields of vision science.

In this work we focused on the visual scene memory on the creation of perceptual prototypes. Using convolutional neural networks, we defined the similarity of scenes in the scene space, which we used in two experiments. In the first experiment, we validated this space using a paradigm for detecting an odd scene. In the second experiment, using the Deese-Roediger-McDermott paradigm, we verified the creation of false memories and thus visual prototypes.

The results show that people intuitively understand the scene space (Experiment 1) and that a visual prototype is created even in the case of the complex stimuli such as scenes. The results have wide application either for machine evaluation of image similarities or for visual memory research.