

## **Visual Working Memory: From Random Arrays of Colored Squares to Complex, Spatially Structured Natural Scenes**

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The visual system stores information in working memory approximately 100,000 times each day, and the storage capacity of visual working memory is a fundamental limit on cognitive abilities. When visual working memory first became widely studied in the 1990s, experiments used either simple artificial displays (e.g., random arrays of colored squares) or photographs of complex natural scenes. Over time, however, experiments using simple artificial displays came to dominate the field, and current quantitative models of visual working memory are limited to already-parsed discrete objects that vary along a small number of simple dimensions and have no spatial structure. Now that neural network models of the perception of natural scenes are widely available, it is time for models of visual working memory to go beyond simple artificial displays. We have developed an approach for modeling the representation of natural scenes in working memory, which makes quantitative predictions about behavioral performance and patterns of neural activity. Although far from perfect, this approach is a first step toward understanding how complex, spatially structured natural scenes are stored in working memory.