The Brain Image Analysis Group of Carnegie Mellon has been developing statistical machine learning algorithms to analyze fMRI data. They are specifically interested in algorithms that can learn to identify and track the cognitive processes that give rise to observed fMRI data. This is done by showing candidates undergoing an fMRI scan picture-word pairs, using the data from the scans as training data for their Machine Learning algorithm.

Once training of the system was completed, the system assessed what semantic category the word being read by the human belonged to by assessing brain activity. The trained classifier was 90% accurate when given two choices, for example between tools or buildings. Also what was done is the training of a system from the fMRI of a different individual or individuals, then the analysis of a completely new test subject. The surprising result was that the system was still very accurate, showing that semantic groups are represented similarly by different individuals!