

# A walk through face space: Affect classification using Markov chain Monte Carlo

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**Abstract:** Exploring how people represent natural categories is a basic step towards mapping out their understanding of the world around them and developing models of category learning. Recent work has resulted in methods for identifying these representations from behavior, such as the classification image technique. In this work, we test an alternative method for inferring the structure of natural categories, called Markov chain Monte Carlo with People (MCMCP). This method uses information about the participants last trial to generate relevant samples for the next one, providing us with a way to explore a sample space. We examined how MCMCP compared with classification images in recovering categories corresponding to two kinds of facial affect (happy and sad faces). The result was that the MCMCP and classification image technique are comparable in early trials. However, it appears that the MCMCP might converge faster, possibly providing a way to reduce trials in identifying representations.