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# OpenfMRI: Open sharing of task fMRI data

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## Abstract

OpenfMRI is a repository for the open sharing of task-based fMRI data. Here we outline its goals, architecture, and current status of the repository, as well as outlining future plans for the project.

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## 1. Introduction

Task-based fMRI has become one of the primary tools of cognitive neuroscience, providing the ability to interrogate the neural basis of mental functions and representations. Most task fMRI studies involve relatively small samples (usually less than 50 subjects), and it is rare that exactly the same tasks are performed across many different studies (given that task development is the primary source of conceptual novelty in these studies). In addition, a significant amount of metadata (including description of task events and their timing) is required to analyze a raw task fMRI dataset. For these reasons, the sharing and combination of task-based fMRI data is significantly more challenging than structural MRI and resting state fMRI, for which data can be relatively easily combined across studies. The sharing of task-based fMRI data got an early start with the fMRI Data Center [12], but this early repository came at a time when the field was not yet ready for widespread data sharing, either technically or socially. Nonetheless, it lit the way for later data sharing efforts, and showed how shared data could be used to make new discoveries [13].

The OpenfMRI database (<http://www.openfmri.org>) [8] was designed as an open repository for task fMRI data. The inception of this project came about when one of us (RP) moved from UCLA to the University of Texas in 2009. In earlier work, he and colleagues had begun to apply novel analyses across multiple datasets with the goal of decoding mental tasks as well as characterizing the large-scale neural networks underlying task performance [9]. With his move came the need to deidentify all of the data used in these previous analyses, so he decided to go ahead and make the data publicly available, in the hope that others would also contribute data to the collection, thus providing an even more powerful foundation for task-based decoding. With funding from the National Science Foundation's program on Collaborative Research in Cognitive Neuroscience and support

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