1. Whole-Brain fMRI Image

2. Challenges for fMRI Classification
- Noisy fMRI time series analysis
- Spatio-temporal mixed tensor structure
- Kernel modeling

3. STTK Framework

4. Experiments

- Spatio-Temporal Feature Extraction
  - Shifted CP Factorization
    \[ \mathcal{X} = \sum_{i=1}^{R} \mathbf{a}_i \otimes \mathbf{b}_i \otimes \mathbf{c}_i \otimes \mathbf{d}_i^T \]

- Tensor-based Feature Mapping

- Comparison with traditional single-voxel technique

- Volumetric Time Series Extraction
  \[ E(x,k) = 1 \]
  \[ E(x,k) = 1 \]
  \[ E(x,k) = 0 \]

- Parameter Analysis

- Classification Accuracy (mean ± standard dev.)

- Compared Methods

- Accuracy with varying rank R

- Accuracy with varying time series extraction rate