

# Resource Summary Report

Generated by [FDI Lab - SciCrunch.org](http://FDI Lab - SciCrunch.org) on Apr 25, 2025

## fMRI-CPCA

RRID:SCR\_009520

Type: Tool

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### Proper Citation

fMRI-CPCA (RRID:SCR\_009520)

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### Resource Information

**URL:** <http://www.nitrc.org/projects/fmricpca/>

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**Description:** Constrained Principal Component Analysis (CPCA) combines regression analysis and principal component analysis into a unified framework. This method derives images of functional neural networks from singular-value decomposition of BOLD signal time series, and allows derivation of images when the analyzed BOLD signal is constrained to the scans occurring in peristimulus time, using all other scans as baseline. CPCA provides (1) determination of multiple functional networks involved in a task, (2) estimation of the pattern of BOLD changes associated with each functional network over peristimulus time points, (3) quantification of the degree of interaction between these multiple functional networks, and (4) a statistical test of the degree to which experimental manipulations affect each functional network. fMRI CPCA provides all results in matlab.mat file format, as well as writing images in analyze format for all components, rotated and unrotated.

**Abbreviations:** fMRI-CPCA, fMRI CPCA

**Synonyms:** fMRI-Constrained Principal Component Analysis, fMRI Constrained Principal Component Analysis

**Resource Type:** software resource, software application

**Keywords:** analyze, linux, macos, matlab, microsoft, magnetic resonance, nifti, posix/unix-like, principal component analysis, regression, statistical operation, windows

**Funding:**

**Availability:** Free

**Resource Name:** fMRI-CPCA

**Resource ID:** SCR\_009520

**Alternate IDs:** nlx\_155682

**Record Creation Time:** 20220129T080253+0000

**Record Last Update:** 20250421T053731+0000

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## Ratings and Alerts

No rating or validation information has been found for fMRI-CPCA.

No alerts have been found for fMRI-CPCA.

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## Data and Source Information

**Source:** [SciCrunch Registry](#)

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## Usage and Citation Metrics

We found 7 mentions in open access literature.

**Listed below are recent publications.** The full list is available at [FDI Lab - SciCrunch.org](#).

Dutt TS, et al. (2022) Mucosal exposure to non-tuberculous mycobacteria elicits B cell-mediated immunity against pulmonary tuberculosis. *Cell reports*, 41(11), 111783.

Lavigne KM, et al. (2018) Hallucination- and speech-specific hypercoupling in frontotemporal auditory and language networks in schizophrenia using combined task-based fMRI data: An fBIRN study. *Human brain mapping*, 39(4), 1582.

Larivière S, et al. (2018) Disrupted functional network integrity and flexibility after stroke: Relation to motor impairments. *NeuroImage. Clinical*, 19, 883.

Engen HG, et al. (2017) The neural component-process architecture of endogenously generated emotion. *Social cognitive and affective neuroscience*, 12(2), 197.

Metzak PD, et al. (2015) Functional brain networks involved in reality monitoring. *Neuropsychologia*, 75, 50.

Liu Z, et al. (2015) Neural networks supporting switching, hypothesis testing, and rule application. *Neuropsychologia*, 77, 19.

Whitman JC, et al. (2013) Functional connectivity in a frontoparietal network involving the dorsal anterior cingulate cortex underlies decisions to accept a hypothesis.

