Resource Summary Report

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PyMVPA

RRID:SCR_006099
Type: Tool

Proper Citation

PyMVPA (RRID:SCR_006099)

Resource Information

URL: http://www.pymvpa.org

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Description: A Python package intended to ease statistical learning analyses of large datasets. It offers an extensible framework with a high-level interface to a broad range of algorithms for classification, regression, feature selection, data import and export. While it is not limited to the neuroimaging domain, it is eminently suited for such datasets. PyMVPA is truly free software (in every respect) and additionally requires nothing but free-software to run. Decoding patterns of neural activity onto cognitive states is one of the central goals of functional brain imaging. Standard univariate fMRI analysis methods, which correlate cognitive and perceptual function with the blood oxygenation-level dependent (BOLD) signal, have proven successful in identifying anatomical regions based on signal increases during cognitive and perceptual tasks. Recently, researchers have begun to explore new multivariate techniques that have proven to be more flexible, more reliable, and more sensitive than standard univariate analysis. Drawing on the field of statistical learning theory, these new classifier-based analysis techniques possess explanatory power that could provide new insights into the functional properties of the brain. However, unlike the wealth of software packages for univariate analyses, there are few packages that facilitate multivariate pattern classification analyses of fMRI data. This Python-based, cross-platform, open-source software toolbox software toolbox for the application of classifier-based analysis techniques to fMRI datasets makes use of Python's ability to access libraries written in a large variety of programming languages and computing environments to interface with the wealth of existing machine learning packages.

Abbreviations: PyMVPA

Synonyms: Python MVPA, Multivariate Pattern Analysis in Python, PyMVPA - Multivariate Pattern Analysis in Python

Resource Type: software toolkit, software resource, software application

Defining Citation: PMID:19184561, PMID:19212459, PMID:20582270

Keywords: python, machine learning, fmri, eeg, neuroimaging, image analysis, scripting, multivariate pattern analysis, brain, meg, extracellular recording, algorithm, reusable library, analyze, c, console (text based), eeg, meg, electrocorticography, frequency domain, independent component analysis, linear, modeling, magnetic resonance, multivariate analysis, nifti, nonlinear, os independent, pet, spect, principal component analysis, python, regression, spatial transformation, statistical operation, temporal transformation, workflow

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Availability: MIT License

Resource Name: PyMVPA

Resource ID: SCR_006099

Alternate IDs: nlx_151596

Alternate URLs: http://www.nitrc.org/projects/pymvpa

Record Creation Time: 20220129T080234+0000

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Ratings and Alerts

No rating or validation information has been found for PyMVPA.

No alerts have been found for PyMVPA.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 140 mentions in open access literature.

Listed below are recent publications. The full list is available at kravitz2 .

Fel??berg AM, et al. (2025) Cortical network modulations associated with prolonged training of the multiple object-tracking task. Imaging neuroscience (Cambridge, Mass.), 3.

Cross L, et al. (2025) Is the whole the sum of its parts? Neural computation of consumer bundle valuation in humans. bioRxiv : the preprint server for biology.

Cara C, et al. (2025) Multimodal investigation of the neurocognitive deficits underlying dyslexia in adulthood. Cerebral cortex (New York, N.Y. : 1991), 35(10).

Newsome P, et al. (2025) My Baby Versus the World: Fathers' Neural Processing of Own-Infant, Unfamiliar-Infant, and Romantic Partner Stimuli. Human brain mapping, 46(11), e70324.

Ghio M, et al. (2025) Unaware processing of words activates experience-derived information in conceptual-semantic brain networks. Imaging neuroscience (Cambridge, Mass.), 3.

Hauptman M, et al. (2025) Animacy semantic network supports causal inferences about illness. eLife, 13.

Ghio M, et al. (2025) The prediction of auditory consequences of own and observed actions: a brain decoding multivariate pattern study. Cerebral cortex (New York, N.Y. : 1991), 35(4).

Oetringer D, et al. (2025) The neural basis of event segmentation: Stable features in the environment are reflected by neural states. Imaging neuroscience (Cambridge, Mass.), 3.

Lugtmeijer S, et al. (2025) Temporal dedifferentiation of neural states with age during naturalistic viewing. Communications biology, 8(1), 1390.

Sievers B, et al. (2024) Consensus-building conversation leads to neural alignment. Nature communications, 15(1), 3936.

Li SPD, et al. (2024) A scene with an invisible wall - navigational experience shapes visual scene representation. bioRxiv : the preprint server for biology.

Ehlers MR, et al. (2024) Valenced tactile information is evoked by neutral visual cues following emotional learning. Imaging neuroscience (Cambridge, Mass.), 2.

Mahmoodi A, et al. (2024) Human hippocampus and dorsomedial prefrontal cortex infer and update latent causes during social interaction. Neuron, 112(22), 3796.

Lulla R, et al. (2024) Empathy from dissimilarity: Multivariate pattern analysis of neural activity during observation of somatosensory experience. Imaging neuroscience (Cambridge, Mass.), 2.

Cushing CA, et al. (2024) Broadening the scope: Multiple functional connectivity networks underlying threat conditioning and extinction. Imaging neuroscience (Cambridge, Mass.), 2.

Sakaki M, et al. (2024) Motivated with joy or anxiety: Does approach-avoidance goal framing elicit differential reward-network activation in the brain? Cognitive, affective & behavioral neuroscience, 24(3), 469.

Farahani FV, et al. (2024) Effects of connectivity hyperalignment (CHA) on estimated brain network properties: from coarse-scale to fine-scale. bioRxiv : the preprint server for biology.

Santavirta S, et al. (2023) Functional organization of social perception networks in the human brain. NeuroImage, 272, 120025.

Andreella A, et al. (2023) Enhanced hyperalignment via spatial prior information. Human brain mapping, 44(4), 1725.

Kryklywy JH, et al. (2023) Dissociating representations of affect and motion in visual cortices. Cognitive, affective & behavioral neuroscience, 23(5), 1322.