

Resource Summary Report

Generated by [NIF](#) on Aug 11, 2026

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 application, software toolkit, software resource

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

Funding: German Academic Exchange Service PPP-USA D/05/504/7;
NIMH MH080526;
NSF SBE 0751008;
James McDonnell Foundation 220020127

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

Record Last Update: 20260811T043244+0000

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 144 mentions in open access literature.

Listed below are recent publications. The full list is available at [NIF](#) .

Gao R, et al. (2026) The language network responds robustly to sentences across tasks. Imaging neuroscience (Cambridge, Mass.), 4.

Feng L, et al. (2026) The neural, neurotransmitter, and transcriptomic mechanisms underlying dispositional greed: exploring its link to negative psychopathology. Behavioral

and brain functions : BBF, 22(1).

Cetron JS, et al. (2026) Neural patterns reflect conceptual grasp of novice students following first class learning in physics. NPJ science of learning, 11(1).

Friend OW, et al. (2026) Hippocampal representations of temporal structure increase in scale and symmetry across development. bioRxiv : the preprint server for biology.

Felber 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).

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

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

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) 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).

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

Oetringier 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.

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.