

# Hey there's DALILA: a Dictionary Learning Library

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## Abstract

Dictionary Learning and Representation Learning are machine learning methods for decomposition, denoising and reconstruction of data with a wide range of applications such as text recognition, image processing and biological processes understanding. In this work we present DALILA, a scientific Python library for regularised dictionary learning and regularised representation learning that allows to impose prior knowledge, if available. DALILA, differently from the others available libraries for this purpose, is flexible and modular. DALILA is designed to be easily extended for custom needs. Moreover, it is compliant with the most widespread ML Python library and this allows for a straightforward usage and integration. We here present and discuss the theoretical aspects and discuss its strength points and implementation.

**1998 ACM Subject Classification** G.1.6 Optimization, D.1.3 Concurrent Programming, D.2.2 Design Tools and Techniques

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