
Pypsy Documentation

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Pypsy is a library for the analysis of psychophysiological data. Currently, Pypsy provides a suite of tools for the decomposition and analysis of electrodermal activity (EDA) signals. Much of this functionality is a port of the [Ledalab](#) software from the [MATLAB](#) programming language.

There are two main subpackages in Pypsy: `Pypsy.signal` and `Pypsy.optimization`. The `Pypsy.signal` module contains resources for representing a psychophysiological signal time series. The `Pypsy.optimization` module contains facilities for optimization, used primarily in decomposing EDA signals.

The most interesting class in Pypsy, by far, is `EDASignal`. This is the class to be used for representing and decomposing EDA signals. The documentation of this class demonstrates just how to do so in its examples.

Pypsy is being developed in conjunction with my own Ph.D. dissertation work. As such, it is very much a work in progress, and features and the overall architecture change often. If you are interested in using Pypsy, please feel free to do so. If in doing so, you find yourself needing help, please create an [issue](#).

Contents:

1.1 Pypsy package

1.1.1 Subpackages

1.1.1.1 Pypsy.optimization

The internals of the `optimization` module are a quick-and-dirty implementation of conjugate gradient descent, that is used in decomposing a `Pypsy.signal.EDASignal` into its constituent tonic and phasic components. These methods are used internally by the `EDASignal` class.

1.1.1.2 Pypsy.signal

Objects of the `Signal` class (and its subclasses) are used to represent psychophysiological signal time series. The `Signal` class can be used to represent any signal with data and associated time points, while the `EDASignal` class contains special functionality for decomposing EDA signals into their tonic and phasic components.

You likely won't need to access the following submodules directly, but they are documented, nevertheless:

1.1.1.2.1 Pypsy.signal.analysis

The `Pypsy.signal.filter` module provides most of the signal processing and analysis functionality required by the `Signal` class and its subclasses, especially for EDA signal decomposition.

1.1.1.2.2 Pypsy.signal.conversion

The `Pypsy.signal.conversion` module provides resources for converting between a number of different commonly-used measures in Pypsy (e.g., amplitude, power, and frequency).

1.1.1.2.3 Pypsy.signal.filter

The `Pypsy.signal.filter` module provides resources for the creation of filters for use by the `Signal` class and its subclasses.

1.1.1.2.4 Pypsy.signal.utilities

The `Pypsy.signal.utilities` module provides resources for calculating the sampling rate of a signal, constraining values, and resampling signals, among other things. Most of what is documented here is intended to be used internally by the `Signal` class and its subclasses.

CHAPTER 2

Indices and tables

- `genindex`
- `modindex`
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