The guide to Pycle (**Py**thon **C**ompresive **Le**arning toolbox)

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Abstract

This is the guide to Pycle, a toolbox for Compressive Learning. It is structured as follows: first we shortly explain the theoretical methods this toolbox implements. Then, we explain how the toolbox is structured, and the main steps that a user should follow to use it. The detailed documentation of all the functionalities in the toolbox is then provided, followed by some practical examples to get started easily.

1 What is Compressive Learning?

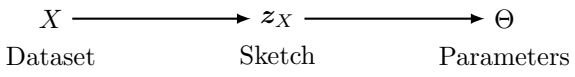

Figure 1: Compressive learning .

See [1] for a complete introduction to compressive learning.

2 An overview of Pycle

2.1 Requirements

The Pycle package builds on a set of standard Python libraries, that are required to run it:

- `numpy`
- `scipy`

2.2 Typical workflow

A typical use of Pycle follows the following steps:

1. Design a sketch operator, then sketch the dataset using the `sketching.py` module.
2. Extract a model from the sketch by a compressive learning method contained in the `compressive_learning.py` module.

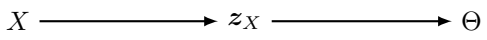

Figure 2: Flowchart of a typical compressive learning execution with Pycle.

3 Documentation

3.1 Sketching methods

3.2 Learning tools

3.3 Utilities

4 Examples

References

[1] R. Gribonval, G. Blanchard, N. Keriven, and Y. Traonmilin, "Compressive statistical learning with random feature moments," *arXiv preprint arXiv:1706.07180*, 2017.