

-- NatalieHeracleous - 2019-02-11

This project concern the characterization tests of the Timepix3, performed by the HSE-RP-SP.

This tutorial attempt to be comprehensive and cover every single feature and give general information to both users and maintainers of this project. It introduces each function with few lines and explains the purpose of the script or library (without assuming the user knows anything about the project). This file is the main entry point for readers of the code. After reading it, you will be able to use this Python codes.

## Installation

**\*1) Install [Python 3.x](<https://www.python.org/>)\***

**\*2) Clone the Timepix repository:** `git clone https://gitlab.cern.ch/lagempix/timepix3.git` more information about git: see CONTRIBUTIONS.md

**\*3) Install python libraries\***

On the command line, change to the cloned repository and type: `pip install -r requirements.txt`

## Getting started

Several **\*Execution\*** scripts are available for data analysis. Bellow a brief description

- `datadriven-prep.py` Works on Data-Driven mode files. Reads a raw file and prepares new files with the tables and grids selected for further analysis. There is a possibility to filter data in charge and time. Saves the created files in a directory with the name of raw file.

- `datadriven-auto-filter.py` Semi-automatic script of `datadriven-prep.py`. Opens a filter configuration file and prepares new files. Besides that prepares plots and a gif.

- `frame-prep.py` Works on Frame-Base mode files. Reads a raw file and outputs to clean format

Several **\*Library\*** scripts are available. This scripts were developed with the intention of being extrated to other problems.

- `support.py` Set of independent functions with auxiliar tasks that support the main scripts. - `plots.py` Library that includes plot configurations. - `datadriven.py` Library to supports datadriven files analysis. Prepares the dataframes with the tables pertended for analysis.

Directories available on cloning this repository:

- **\*libs/\*** contains all library files - **\*docs/\*** contains detailed documentation of the application - **\*data/\*** contains sample data

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This topic: Main > Timepix3Tests

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