
Loader Plotter Documentation

Release 1.0

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This is a auto-generated documentation of the Loader-Plotter produced. The main objective of this loader is to grab the Data from ArrayFire format files and a designated folder. With that and the class requirements, it loads the data to *Numpy* arrays so that it can Plot Surface, Plot 3D and Construct Movies.

Requirements:

To run this Loader one need to have installed various modules: * *Numpy* * *ArrayFire* * *Matplotlib* * *ImageIO* * *DateTime*

class `Loader.meshPlot` (*InPath*, *Plot1D=True*, *PlotSlices=False*, *PlotTemporal=False*, *Mov=False*)

Class that contains information about the mesh of the data loaded.

Only works with ArrayFire file format in the following protocol: SF_XXXX.af :: For different suffix and prefix the *load_parameters()* has to be changed

At the moment it only has the hability to process 1D input data and turn them in a 2D (or semi-3D) output figure/movie.

The format of movie/figures can be altered in the specific function, namely *plot_sequence(InPath)*

The Initializer does Initiate the object to proceed with the data loading and dump them in a specific required format as output.

Parameters

- **InPath** – The relative path where the group of ArrayFire data is located.
- **Plot1D** – A Boolean parameter to inform the class if the user wants the set of input data to be converted to a 2D plot.
- **PlotSlices** – A Boolean parameter to inform the class if the user wants a Semi-3D plot of the group data available in the InPath folder.
- **PlotTemporal** – A Boolean parameter to inform the class if the user wants a output in the 2D color-contrast mode graph (pcolor/imshow format)
- **Mov** – A simple Boolean to inform the class if the user wants a final video of the movement to be rendered.

load_envelope (*filename*)

Function to load the file in ArrayFire format (.af) and convert it to a 1D Array in the NumPy format so it can be handled and plotted.

Parameters filename – The file name of the ArrayFire format file to load and convert to *Numpy* Array format.

load_parameters ()

Reads the file with parameters of the simulation and returns a set of data in the following order: :: Dimensions, Time Step, Spatial Step, Number of Points, Vector Limits

No arguments must be passed and a file *parameters.dat* in a defined protocol format has to exists with accurate mesh information

plot_sequence (*InPath*, *DoMovie*)

Function to plot the set of saved data with the matplotlib plot functions. This makes the output beautiful!!!

Parameters

- **InPath** – String value indicating the relative path of all *ArrayFire* (.af) files containing the data computed by the GPU
- **DoMovie** – Simple Boolean variable indicating if the user pretends a final Movie to be rendered. (typical fps can be changed in the source code)