Guide HySISAT

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This document assumes that the program is already installed. For installation instructions see `https://github.com/joostzwart/ThesisSARXSAT`. To start the program run gui.py. A graphical user interface will popup.

On the left side parameters can be specified. Starting on the top-left, the order of the input and output can be prescribed in addition to the bound on the error. Checking the checkbox next to split large datasets will tell the program to split the dataset into smaller pieces. When this checkbox is ticked, a input field will appear where the number of pieces can be chosen.

Next, the user has to decide to identify a SARX model or a PWARX model. When identifying a SARX model the minimum dwell time can be specified.

On the other hand for a PWARX model the number of switches can be specified.

The final choice that has to be made is to either identify a dataset, or to generate a new model for identification. When generating a new model the following properties should be defined: The simulation time (length of dataset that is generated), The number of submodels, the bound on the noise, the number of inputs and outputs, the type of input and finally a seed.


When identification from an existing dataset is conducted, the input and output should both be provided as comma separated textfiles. When both are provided the input and output can be seen on the top right.
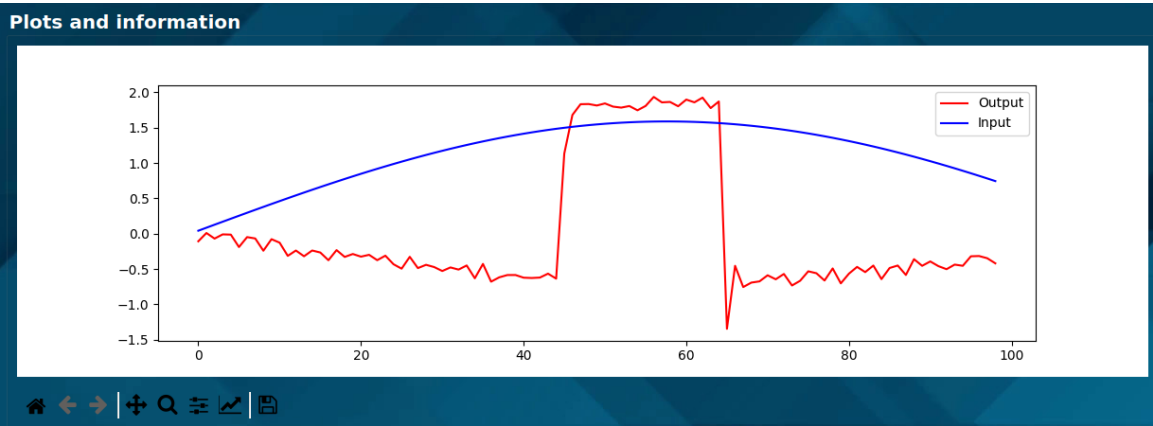

Everything is setup now and identification can start by pressing the green start button. The progress bar in the bottom of the screen will keep track of the progress and the information screen will keep the user informed.

Total time for identification process: 17.39022397994995
Data fit error = 93.40467975526384
NI for this run = [[1], [0], [2]]

Start   100%
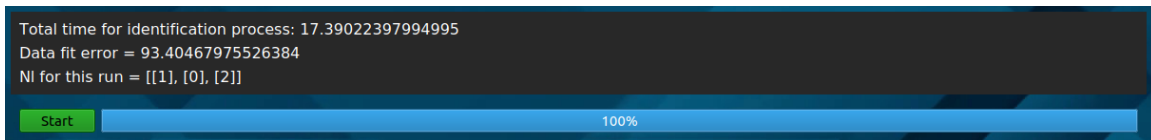
After the identification process is finished, the resulting switching sequence is displayed.
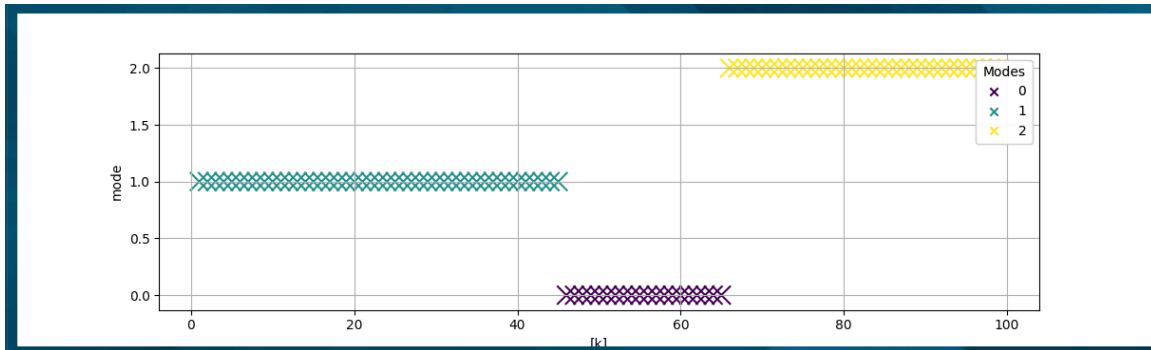
The program can now be closed. After every succesfull identification procedure a folder will be created containing the results.
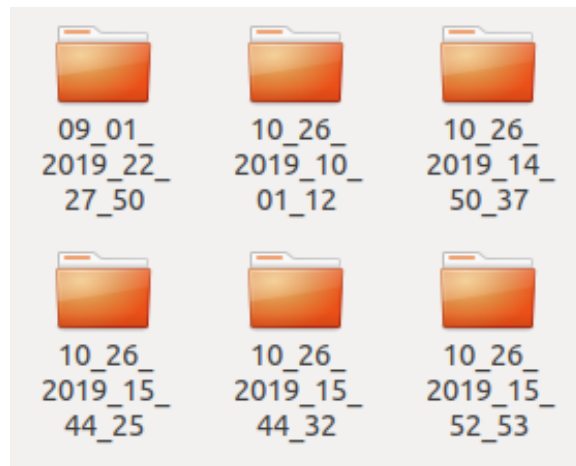
This folder contains information about the resulting switching sequence, models, input, output, regressor, and finally the partition of the regressor space in case a PWARX model was identified.