This directory consists of 5 files

**1) Chaboche\_model\_implementation\_dataset\_generation.ipynb**

* The jupyter notebook implements the chaboche model to generate the dataset for the machine learning task.
* The implementation of chaboche model can be improved further by correctly implementing the calculation of plastic strain.

**2) chaboche\_model\_neural\_network\_implementation.ipynb**

* This jupyter notebook generated the dataset and implements a neural network.
* The nerual network is trained on the generated dataset.
* The model along with min\_max\_scalers are stored in the directory.

**3) Testing\_algorithm\_chaboche\_model.ipynb**

* This jupyter notebook reloads the model resulting from the file 2 along with the stored min\_max\_scaler.
* A test dataset in generated.
* The model is tested on the test dateset.

**4) group\_wise\_implementation\_chaboche\_model.ipynb**

* This jupyter notebook implements a group wise neural network by grouping all the strain values for one material in one group.

**5) chaboche\_model\_neural\_network\_and\_hysterisis\_curves.ipynb**

* This jupyter notebook generates a dataset using chaboche model and trains a nerual network on the generated dataset.