NEURAL NETWORK
GOAL

Design a neural network to analyze the upstream and downstream faraday cup signals to identify the **interlock time window** preceding the interlock event so as to prevent that:

- the *crashing* of the system
- there may be *heavy breakdown*

To train the neural network the signals must be pre-processed to:

- *identify* the interlock time window
- *acquire* time windows with the same sampling frequency and of the same length
- *label* the time windows to distinguish the «interlock window» from «stable window» (classification problem)

NEURAL NETWORK
ARCHITECTURE

INPUT
input of pre-processed time window

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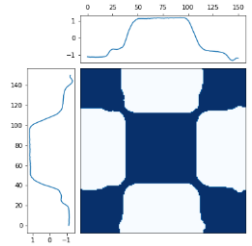
RP GENERATION
generation of recurrence plot to extract the recurrence of window samples



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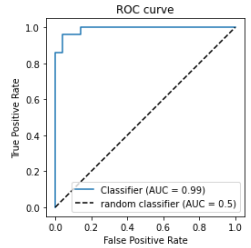
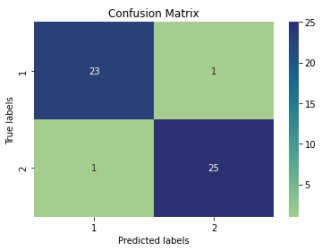
CLASSIFICATION
Classification of time windows using a convolutional neural network





THE CLASSIFICATION MUST OCCUR FASTER THAN INTERLOCK EVENT TO PREVENT IT