# Function of Signal Segmentation

## Description

Result = Signal segmentation returns the signal after segmentation. "Generate Simulation Data" is used to generate the data set based on the physics model or signal model. "Data Segmentation" is used to upload the required data set and label set. The required parameters should be set in the "Segmentation\_len" and "Segmentation\_nums".

## Parameter introduction

Parameters of GAN:

* Class of Defect: Here are 4 types of bearing failure, and they are multi-selectable.
* Bearing Dynamic Simulation: Here are 2 models to generate the data set: "Physics-based Model" and "Signal-based Model".
* Segmentation\_len: Length of each set of samples after segmentation. (data type: int)
* Segmentation\_nums: Number of sample sets after segmentation. (data type: int)

**Functional description of the main components**

The overall view of the function of signal segmentation is divided into "Generate Simulation Data", and "Data Segmentation".

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### Generate Simulation Data

Select the type of bearing failure and the model for data generation.

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### Data Segmentation

The user can upload the data file and label file here. The uploaded data files and label files support ".mat", ".txt", ".csv", ".xls", and ".npy" format files.

Then the user sets the parameters.

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### Result

After the software has been run, click the "Download" button to download relevant result data.

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**Examples**

The process of using signal segmentation.

**Step 1: Configuration procedure**

Select "Data Processing" from the process bar on the left side of the web page.



Then select the procedure that needs to be configured from the process display area.

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**Step 2: Select the function**

The ''Signal Segmentation' function is chosen for signal segmentation.

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**Step 3: Data file upload**

Here are 2 methods to upload the data file. The User can choose to generate data from the 2 models or upload data files externally.

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**Step 4: Set and save the parameter**

The user needs to set the parameters in the blank box. For details about the parameters of the function, see "Parameter introduction".

Finally, click "Save" after all parameters are configured.

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**Step 5: Execute the configured procedure**

Before executing the configured function, the user also needs to set the selected output file format.

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Finally, select "Run".

**Step 6: Download**

When the progress bar reaches the end, the task is completed.

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Click "Download" to download the file of data.

