# The Function of Gaussian Mean Ratio - Fast Fourier Transform (GMR-FFT)

Feature extraction based on GMR-FFT.

## Description

GMR-FFT is a resultant value calculated by the SBN (Spindle Bearing Noise) method, which is a new way to express the health of bearings. "Data Upload" is used to load the required data set and label set.

## Parameter introduction

Parameters of GMR-FFT:

* This function does not require configuration parameters.

**Functional description of the main components**

The overall view of the function of GMR-FFT is only divided into "Data Upload" and "File Upload".

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### Data Upload

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

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### File Upload

The users can choose whether to use external SBN0 data or not. When the users want to upload their own SBN0 data, they can upload the file in the "File Upload" area. If the users do not upload, the SBN0 data provided by the platform will be used by default.

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### Result

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

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**Examples**

The process of using GMR-FFT in feature extraction.

**Step 1: Configuration procedure**

Select "Feature Extraction and Reduction" 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: Upload the data file and the label file**

Select the data file and the label file to be applied from the local path.

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Click "Upload" after successfully selecting the upload data file, and then click "Save".

**Step 3: Select the function**

The ''GMR-FFT'' function is chosen for feature extraction.

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**Step 4: Upload the SBN0 data file**

If the users want to upload their own SBN0 file, they should upload it here, otherwise skip this step.

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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.

