# The Function of the Image-transformation-based Method

Data augmentation based on the image-transformation-based method.

## Description

The image-transformation-based method achieves noise reduction based on 4 types of image transformations. It returns the signals after augmentation. "File Upload" is used to load the required data set, and the required parameters should be set in the "Method" field.

## Parameter introduction

Parameters of image-transformation-based method:

Here are four Method parameters and they are multi-selectable:

Translation

* Translation in X: The shifting step in the x direction. (data type: float)
* Translation in Y: The shifting step in the y direction. (data type: float)

Rotation:

* Rotation angle: Rotation angles. (data type: float)

Noise:

* Signal-to-noise ratio: Signal-to-noise ratio. (data type: float)

Scale:

* Scale factor: Factor of enlarge and shrink. (data type: float)

Num: Number of augmentations. (data type: int)

**Functional description of the main components**

The overall view of the function of the image-transformation-based method is divided into "File Upload", "Method" and "Result".

图形用户界面, 文本

描述已自动生成

### File Upload

The uploaded data files and label files support ".mat", ".txt", ".csv", ".xls", and ".npy" format files.



### Method

The user can set the parameters here.

图形用户界面, 应用程序

描述已自动生成

### Result

After the software has been run, click the "Show Result" button to display only one signal diagram after augmentation.

After the software has been run, click the "Download" button to download the relevant result data, original signal diagram, and signal diagrams after augmentation:

.

图形用户界面, 文本, 应用程序, 聊天或短信

描述已自动生成

图表, 条形图, 折线图

描述已自动生成

图片包含 游戏机, 物体

描述已自动生成

**Examples**

The process of using the image-transformation-based method in data augmentation.

**Step 1: Configure the procedure**

Select "Data Augmentation & Sample Generation" from the process bar on the left side of the web page.



**Step 2: Select the function**

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

图形用户界面, 文本, 应用程序, 聊天或短信

描述已自动生成

The ''Image-transformation-based Method'' function is chosen for data augmentation.

图形用户界面, 应用程序

描述已自动生成

**Step 3: Upload the data file**

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



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

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

The user needs to select the required transformation method and then set the parameters in the corresponding method.

**图形用户界面, 应用程序

描述已自动生成**

**Step 5: Execute the configured procedure**

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

**图形用户界面, 文本, 应用程序, 聊天或短信

描述已自动生成**

Finally, select "Run".

**Step 6: Show the result**

图形用户界面, 文本, 应用程序, 聊天或短信

描述已自动生成

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

When the signal is augmented *N* times, 1 original signal diagram and *N* signal diagrams after augmentation will be generated.

文本

中度可信度描述已自动生成

Select "Show Result" to simply view only one signal diagram after augmentation, and the remaining images can be downloaded and viewed.

**图片包含 游戏机, 物体

描述已自动生成**

**Step 7: Download**

Click "Download" to download the file of data and images.

