

Tool: ChatGPT

Prompt: Add extra padding so my MFCC implementation will fit

Output:

Your array of MFCC features (Mel-Frequency Cepstral Coefficients), usually a 2D array:

Shape: (num_frames, num_coefficients)

e.g., (100, 13) for 100 frames of 13 MFCCs each.

2. np.pad()

Adds extra values around the edges of an array.

Syntax:

`np.pad(array, pad_width, mode)`

array → the array to pad (mfcc)

pad_width → how much padding to add along each dimension

mode → how to fill the padding (constant, edge, etc.)

3. ((0,0),(0,pad_width))

This tuple specifies padding for each axis:

(0,0) → for the first axis (num_frames), add 0 before and 0 after → no padding on rows

(0,pad_width) → for the second axis (num_coefficients), add 0 before and pad_width after → pad columns at the end

So if mfcc was in shape (100, 13) and pad_width = 5, the result will be (100, 18).

4. mode='constant'

Pads with a constant value, default is 0.

So the new columns will be filled with zeros.

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Prompt: How can i reshape my array so it is ready for input from MFCC

Output:

Got it — you want to reshape your MFCC array X so it's ready for input into a machine learning model.

Here's a clear explanation with steps.

Scenario:

Suppose X is your MFCC array for multiple audio samples. Its shape is typically:

`X.shape = (n_samples, n_mfcc, n_time)`

Example: 100 audio clips, 13 MFCCs, 50 time frames → (100, 13, 50)

1. Flatten MFCCs for Dense Neural Networks

Dense networks expect 2D input: (num_samples, num_features).

You can flatten each MFCC matrix into a single vector:

`X_reshaped = X.reshape((n_samples, n_mfcc * n_time))`

Example: (100, 13, 50) → (100, 650)

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Prompt: Syntax error I thought I declared this array right?

Output:

Got it – you want a 2D input, but your input is 1D. Why? Often a machine learning model expects 2D input, even for a single sample.

```
test_val = np.array([[0.5]])
```