# **F2CNN project implementation details**

**Input data format**

3-dimensional NumPy array (N\_samples x 11 x 128), where value at entry a[*i*,*j,k*]

will be the value of envelope at *i*-th entry at time Ti + (*j* – 5) x 10ns of *k*-th filter’s envelope

**Label data format**

**CSV file*,*** columns for i-th row:

Region (dr1-dr8)

Name of speaker

Name of sentence

Phoneme label from .phn file

Value of time Ti

Value of derivative of F2 at the given time

p-value for slope given by linear regression model

maybe also confidence interval for slope

# **F2CNN project verification**

**Verify filter bank**

* Visualize output of some filter banks on some files
* Use two different gammatone implementations to compare
* Feed white-noise and analyze spectrum of few filters
* Determine impulse response a filter by feeding delta signal

**Verify envelope**

* Plot signal from a filter bank together with envelope
* Plot all envelopes and compare with spectrogram
* Use a different envelope extraction mechanism
  + [square and low-pass](https://ieeexplore.ieee.org/document/5741712/)
  + use [GPPAD](http://www.gatsby.ucl.ac.uk/~turner/Code/GPPAD.zip)