

## 1. BASELINE

先觀察起始模型的表現在判斷用哪個地方改

```
[(kaldi) root@0a58467d6003:/opt/kaldi/dsp-hw2-1# bash 4-test.sh
Converting acoustic models to HTK format
  output -> viterbi/mono/final.mmf viterbi/mono/tiedlist
  log -> viterbi/mono/log/am.to.htk.log
Generating results for test set with acoustic weight = [ 0.87 ]
  output -> viterbi/mono/test.mlf
  log -> viterbi/mono/log/latgen.test.log
  result -> viterbi/mono/test.rec
  accuracy -> [ 75.30 ] %

Execution time for whole script = 00 hours 00 mins 02 secs
```

## 2. Method

推測是因為模型的複雜度太低導致無法套用於整個 dataset，所以把 transition set 和高斯的數量和 iter 數調大

```
<State> 0 <PdfClass> 0 <Transition> 0 0.75 <Transition> 1 0.25 </State>
<State> 1 <PdfClass> 1 <Transition> 1 0.75 <Transition> 2 0.25 </State>
<State> 2 <PdfClass> 2 <Transition> 2 0.75 <Transition> 3 0.25 </State>
<State> 3 <PdfClass> 3 <Transition> 3 0.75 <Transition> 4 0.25 </State>
<State> 4 <PdfClass> 4 <Transition> 4 0.75 <Transition> 5 0.25 </State>
<State> 5 <PdfClass> 5 <Transition> 5 0.75 <Transition> 6 0.25 </State>
<State> 6 <PdfClass> 6 <Transition> 6 0.75 <Transition> 7 0.25 </State>
<State> 7 <PdfClass> 7 <Transition> 7 0.75 <Transition> 8 0.25 </State>
<State> 8 <PdfClass> 8 <Transition> 8 0.75 <Transition> 9 0.25 </State>
<State> 9 <PdfClass> 9 <Transition> 9 0.75 <Transition> 10 0.25 </State>
<State> 10 <PdfClass> 10 <Transition> 10 0.75 <Transition> 11 0.25 </State>
<State> 11 <PdfClass> 11 <Transition> 11 0.75 <Transition> 12 0.25 </State>
<State> 12 <PdfClass> 12 <Transition> 12 0.75 <Transition> 13 0.25 </State>
<State> 13 <PdfClass> 13 <Transition> 13 0.75 <Transition> 14 0.25 </State>
<State> 14 <PdfClass> 14 <Transition> 14 0.75 <Transition> 15 0.25 </State>
<State> 15 </State>
```

```
numiters=20 # Number of iterations of training
maxiterinc=19 # Last iter to increase #Gauss on.
numgauss=1000 # Initial num-Gauss (must be more than #states=3*phones).
totgauss=1000 # Target #Gaussians.
incgauss=$((totgauss-$numgauss))/$maxiterinc # per-iter increment for #Gauss
realign_iters="1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20";
scale_opts="--transition-scale=1.0 --acoustic-scale=0.1 --self-loop-scale=0.1"
```

## 3. Result

接下來就把 4-test.sh 的 beam size 慢慢調大去最佳化就好了，實際用 macbook pro 跑 beam size 到 200 還算跑得動，所以調整 beam size 可以大膽地調

```
[(kaldi) root@e7ac854933b2:/opt/kaldi/dsp-hw2-1# bash 4-test.sh
Converting acoustic models to HTK format
  viterbi/mono/final.mmf viterbi/mono/tiedlist exist , skipping ...
Generating results for test set with acoustic weight = [ 0.87 ]
  output -> viterbi/mono/test.mlf
  log -> viterbi/mono/log/latgen.test.log
  result -> viterbi/mono/test.rec
  accuracy -> [ 97.24 ] %
```