Digital Signal Processing Project 2

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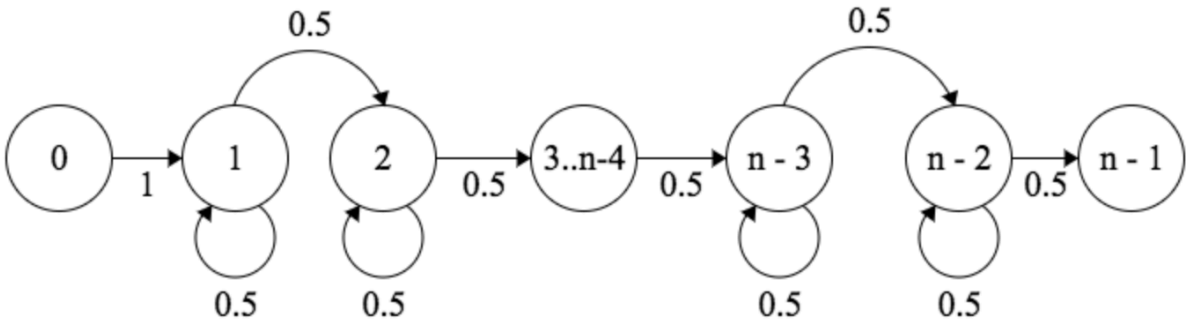
Training Process

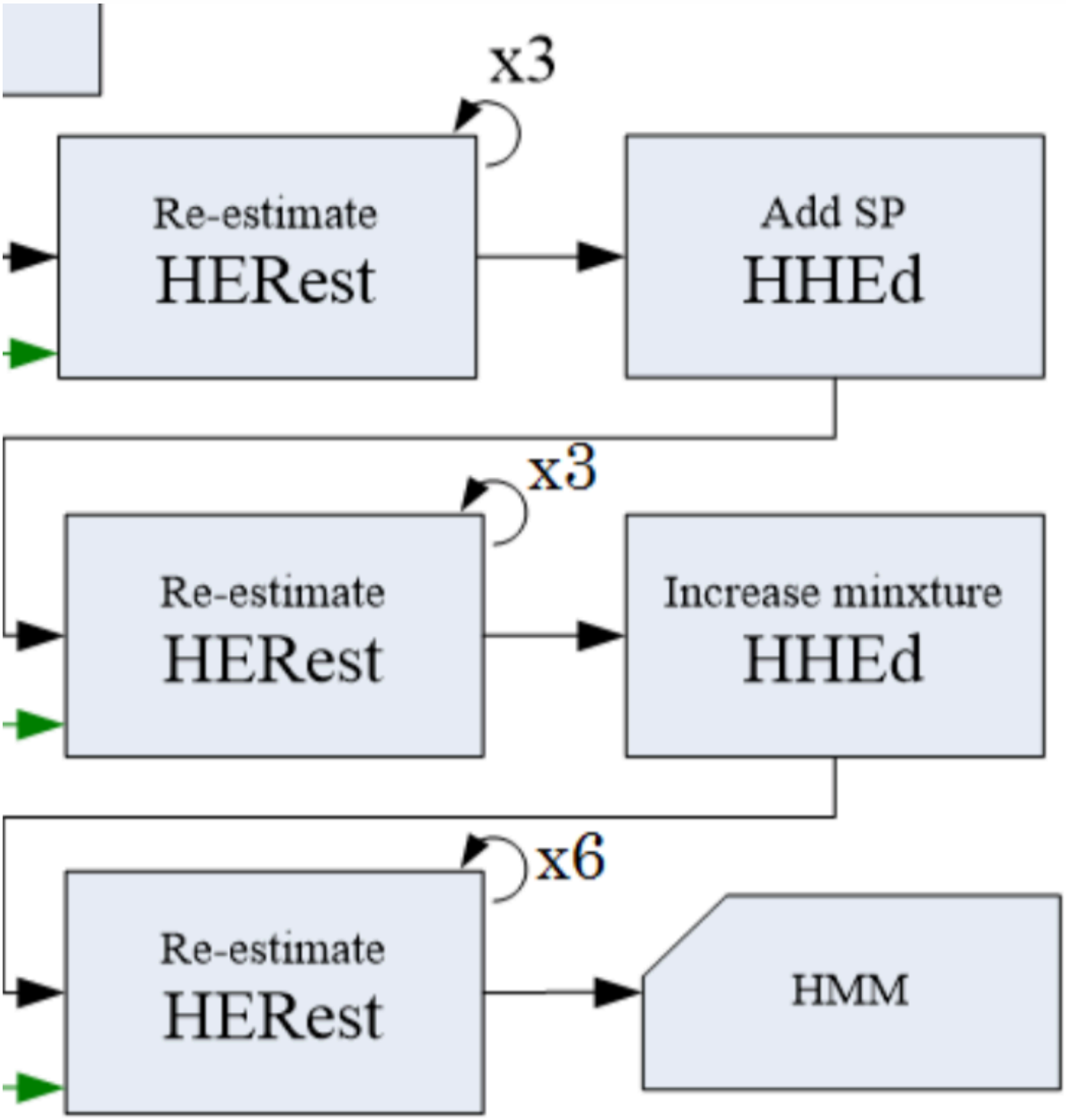
Phase 1: Adjust number of states

- For state 0 (initial state), the transition function is always going to state1.
- For state 1 to state $n-2$, the transition function is 50% going to the itself and 50% going to the next state($1 \rightarrow 2$, $2 \rightarrow 3$ and so on)
- For state $n-1$ (final state), the transition function is a zero vector.



#state(n)	5	6	7	8	9
accuracy	74.34%	81.47%	87.80%	89.64%	90.91%
#state(n)	**10**	**11**	**12**	**15**	**20**
accuracy	93.67%	94.25%	95.22%	95.91%	94.42%

Phase 2: Adjust the number of iterations



$(n1, n2, n3)$ = (#iter of 1st HERest, #iter of 2nd HERest, #iter of 3rd HERest)

- #states = 12

#iteration	(3, 3, 6)	(5, 5, 10)	(7, 7, 14)	(10, 10, 20)	(15, 15, 30)	(20, 20, 40)
accuracy	95.22%	95.57%	95.80%	96.20%	96.43%	96.49%

Phase 3: Adjust the number of Gaussion Mixtures

- Adjust all states except initial and final.
- #state: 12
- #iteration: (20, 20, 40)

#Gaussion Mixtures	2	3	4	5	6
accuracy	96.49%	96.61%	97.12%	97.18%	96.89%

Result

- The maximum accuracy is 97.18% (#state = 12, #iteration = (20, 20, 40), #GM = 5)
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====================== HTK Results Analysis =======================
  Date: Thu May 17 13:27:58 2018
  Ref : labels/answer.mlf
  Rec : result/result.mlf
------------------------ Overall Results --------------------------
SENT: %Correct=90.42 [H=434, S=46, N=480]
WORD: %Corr=97.70, Acc=97.18 [H=1698, D=27, S=13, I=9, N=1738]
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