

Review on “Efficient ML Training of CDHMM Parameters Based on Prior Evolution, Posterior Intervention and Feedback”

Feng Zheng

Institute for Signal and Information Processing
Mississippi State University
Mississippi State, MS 39762 USA
email: zheng@isip.mstate.edu

ABSTRACT

“Efficient ML Training of CDHMM Parameters Based on Prior Evolution, Posterior Intervention and Feedback” (PEPIF) investigates an efficient maximum likelihood (ML) training procedure for Gaussian mixture continuous density hidden Markov model (CDHMM) parameters. In the PEPIF procedure, two implementation issues can be expected to achieve the improvement respectively: (1) two different initialization methods which are termed τ -initialization and prior-weight initialization; (2) posterior intervention scheme. Five experiments for training CDHMMs and evaluations were performed on continuous speech recognition of Mandarin Chinese. The comparison of experiment results nicely verify the improvement achieved by the PEPIF algorithm. According to these experiments, the writer demonstrates that the PEPIF algorithm produces a faster increase in likelihood or recognition accuracy than Baum-Welch does, and also offers a 4-fold speed-up over Baum-Welch in the run-time to produce models of given likelihood or accuracy. So this PEPIF algorithm is promising to improve the efficiency of training models, and we will provide a review on verifying the accuracy of the theory.

