

Kenny, P., Boulianne, G., Ouellet, P. and P. Dumouchel. "Joint Factor Analysis versus Eigenchannels in Speaker Recognition" *IEEE Transactions on Audio Speech and Language Processing*, 15 (4) May 2007.

Abstract

We compare two approaches to the problem of session variability in GMM-based speaker verification, eigenchannels and joint factor analysis, on the NIST 2005 speaker recognition evaluation data. We show how the two approaches can be implemented using essentially the same software at all stages except for the enrollment of target speakers. We demonstrate the effectiveness of zt-norm score normalization and a new decision criterion for speaker recognition which can handle large numbers of t-norm speakers and large numbers of speaker factors at little computational cost. We found that factor analysis was far more effective than eigenchannel modeling. The best result we obtained was a detection cost of 0.016 on the core condition (all trials) of the evaluation.

Keywords: Speaker verification, Gaussian mixture model, speaker factors, channel factors, eigenchannels