**Confidence-driven Estimator Perturbation: BMPC**

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**Volume 2, Page 803**

**Abstract:**

In most practical applications of speech recognition, the acceptance and performance of the system depends strongly on its capability to adapt to the special speaker characteristics. Restricted to the problem of language model adaptation, one has to find an efficient way to combine a typically well-trained a priori estimator for a domain with a regularly updated but undertrained estimator reflecting the actual speaker-specific data so far. In this paper we present a new language model estimation technique that makes explicit use of the confidence in estimates obtained on the (typically small) adaptation or training data. Mathematically it attempts to perturb a given reliable a priori distribution in such a way that it fits into the confidence regions given by the training material. Experiments performed on real-life data supplied by US radiologists indicate that the method could improve standard adaptation techniques like linear interpolation.