NIST SRE 2006

I3A System Description

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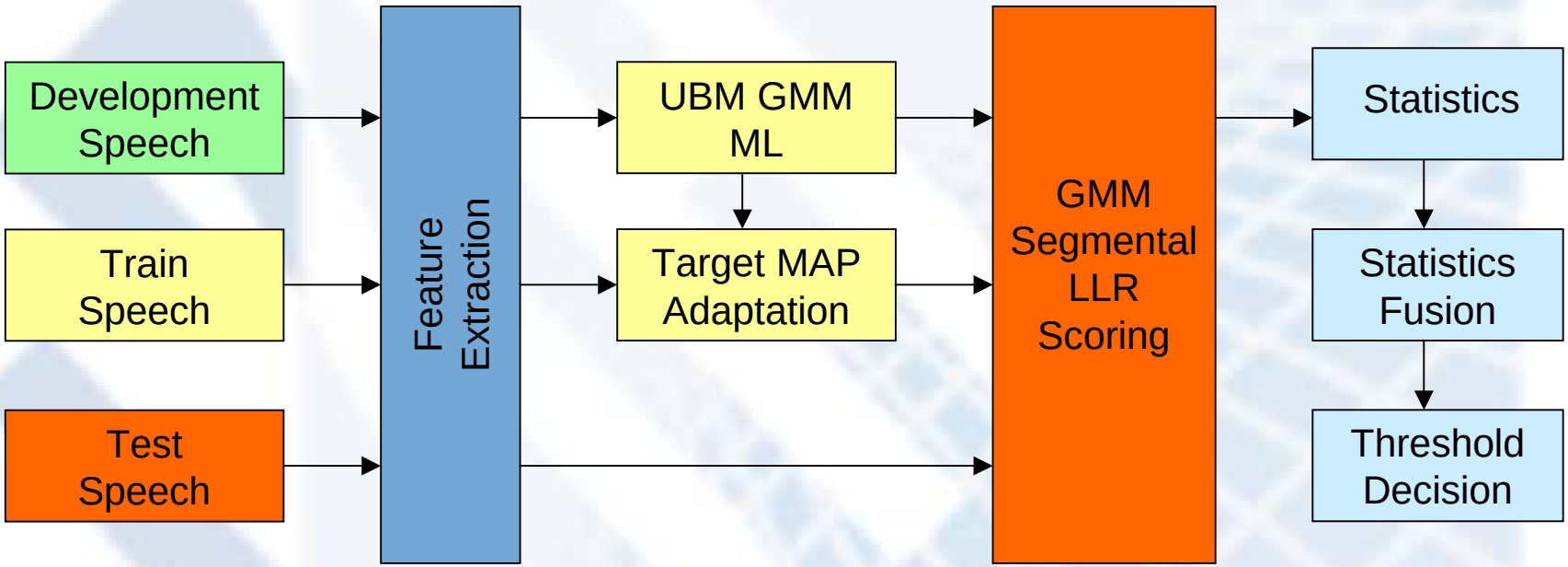
SYSTEM OVERVIEW



- Basic GMM LLR based system.
- Fusion of segmental LLR statistics.

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SYSTEM OVERVIEW

- Feature Extraction:
  - Bigaussian log-Energy VAD.
  - 16 ETSI MFCC + Δ + $\Delta\Delta$ using CMS.
  - Initial ideal: Different levels of time and frequency resolution
- UBM Models:
  - 1024 GMM ML gender dependent (male/female).
  - Trained with NIST SRE 2004 database.
- Target Models:
  - MAP means adaptation from UBM model.
- Scoring:
  - Compute statistics from frame by frame LLR: mean, skewness, covariance, median and kurtosis.
  - Statistics Fusion using GMM and sum rule.
  - Fusion and thresholding trained with NIST SRE 2005 database.

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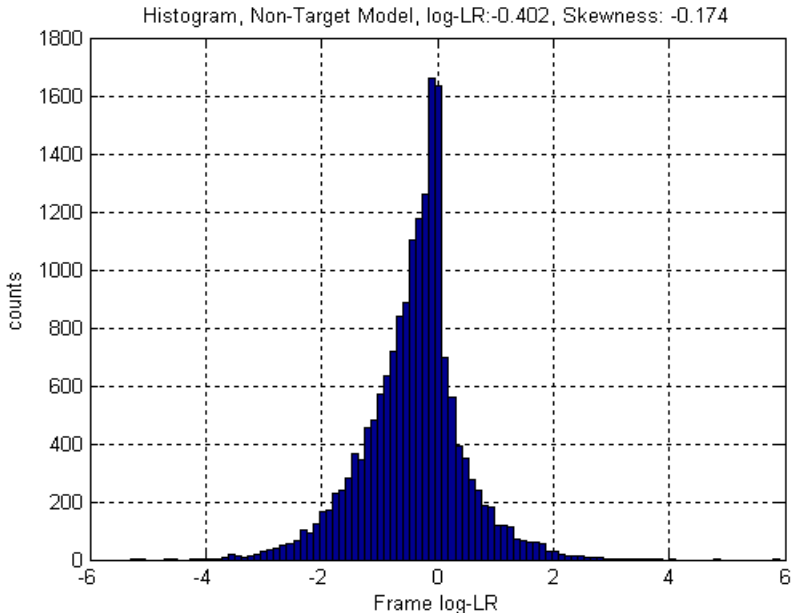
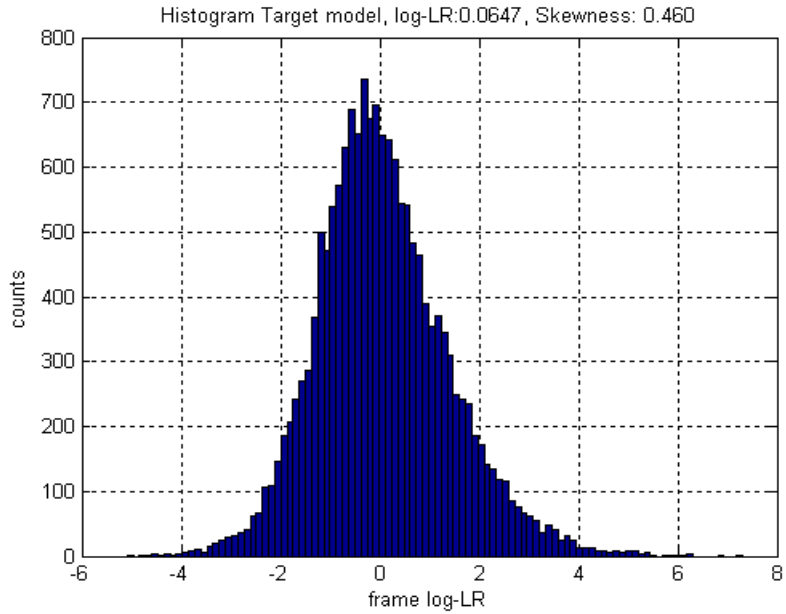
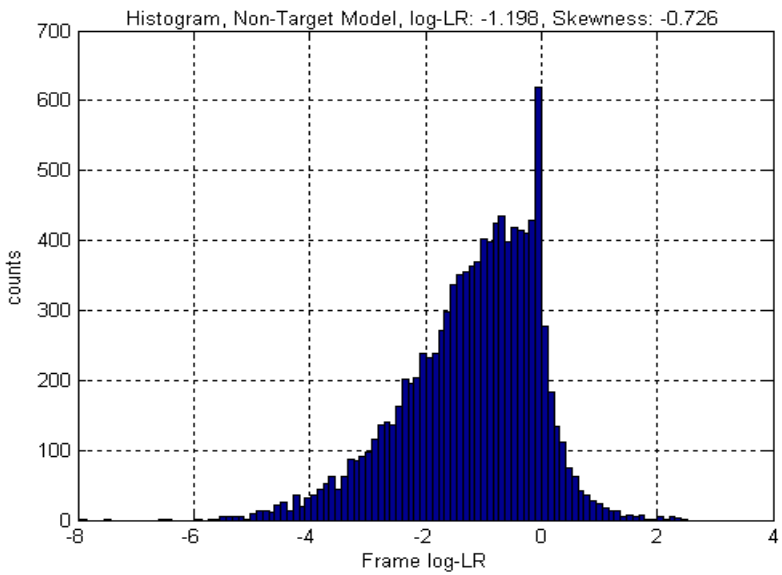
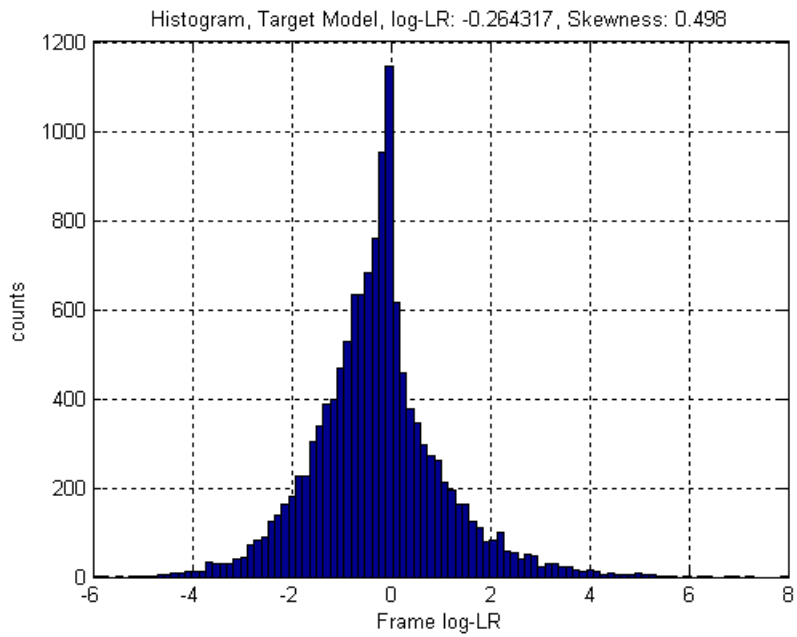
Frame Log-LR Histograms



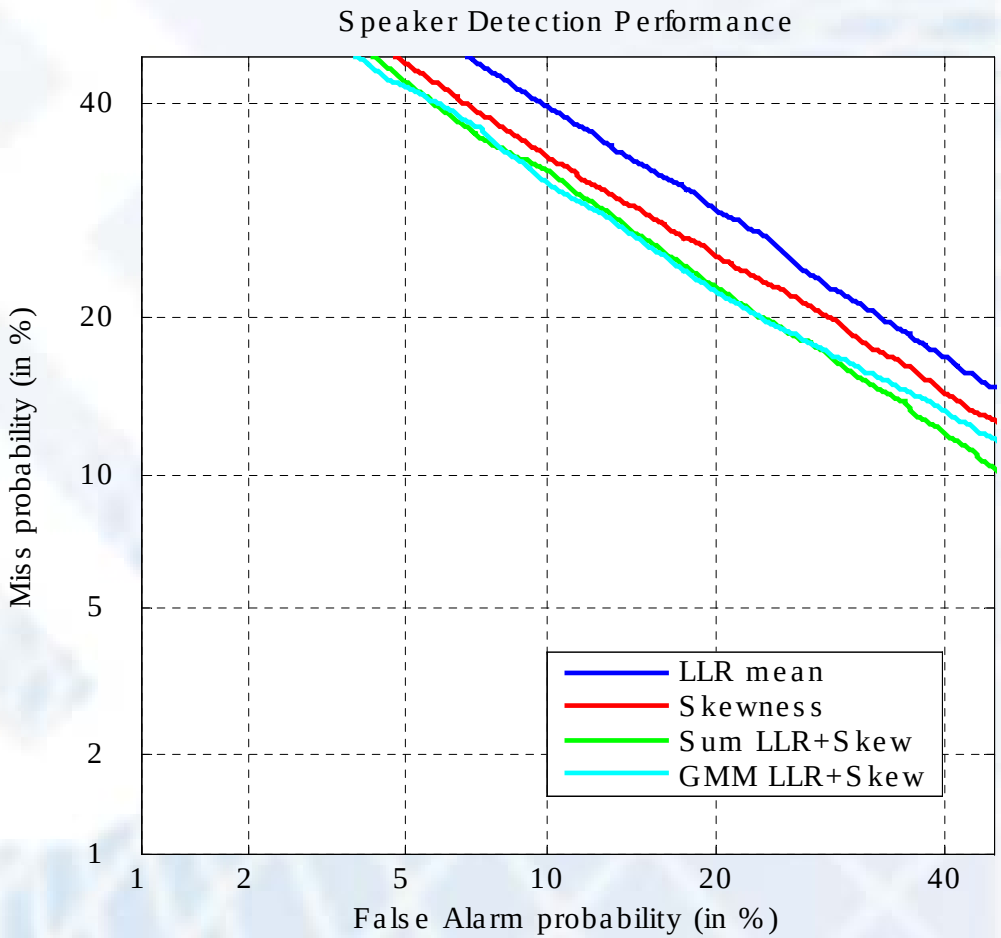






1conv4w-1conv4w DET

- Relevance of skewness of score distribution (better than mean).
- Better result for fussion of mean and skewness with sum rule.
- Covariace, median and kurtosis less discriminant.



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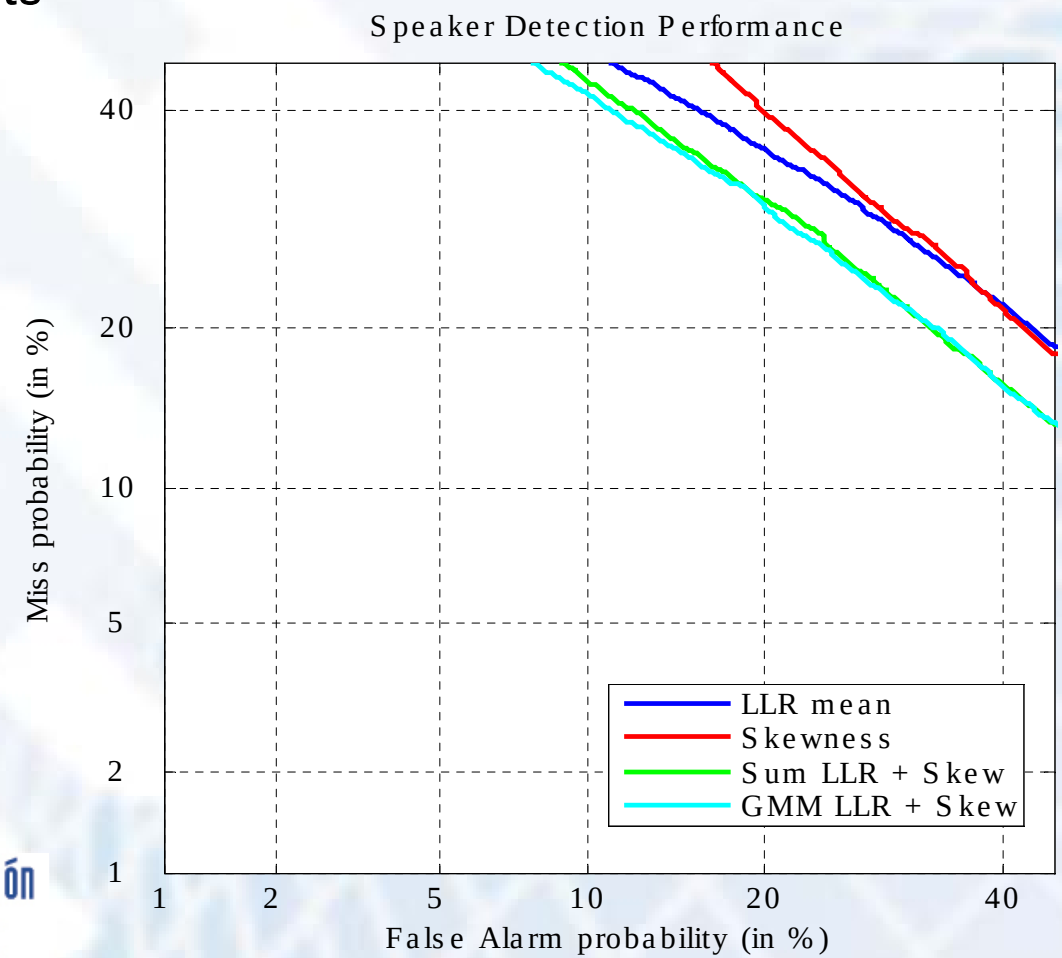
1conv4w-10sec4w DET

- Again, better results for LLR mean and skewness fusion.



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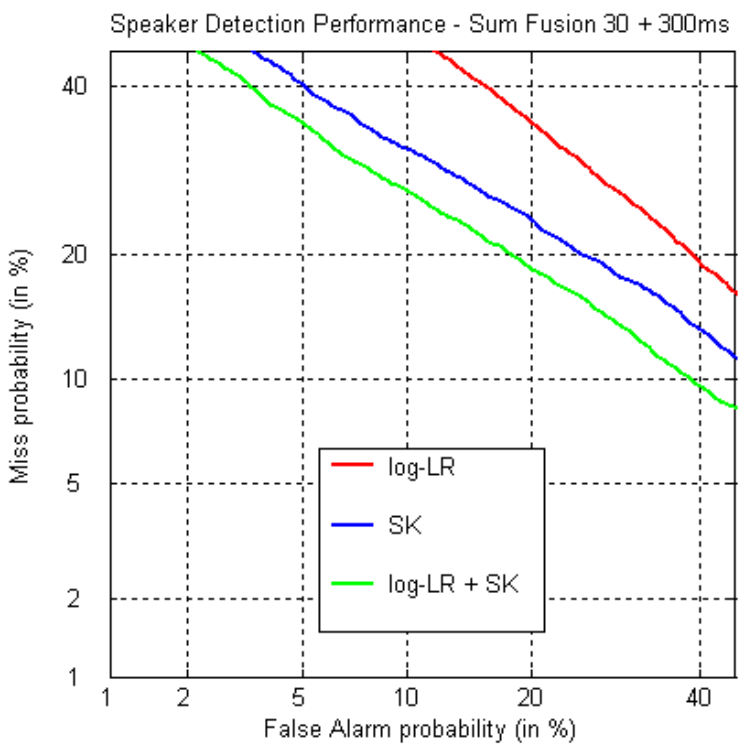
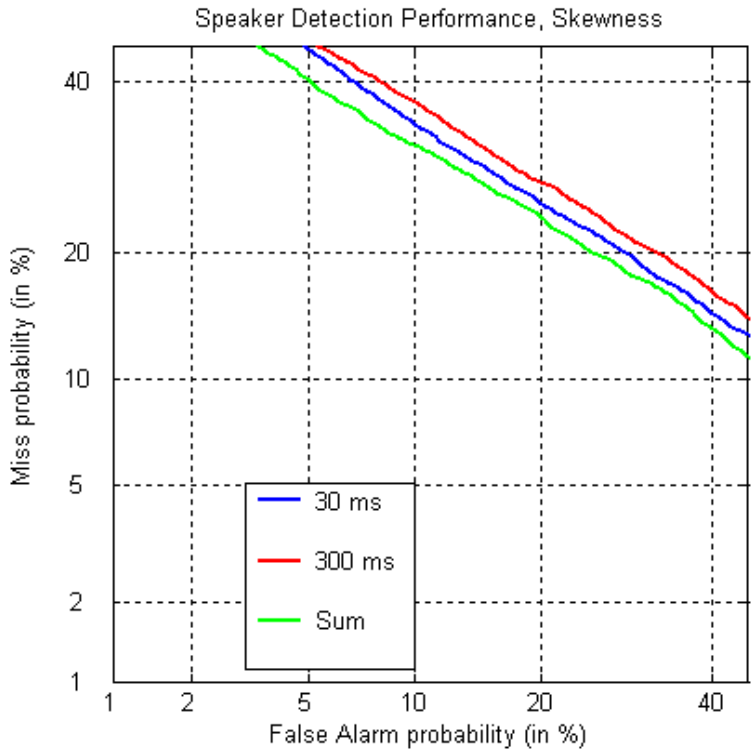
Aditional Feature extraction: 300 ms window

Features at “syllabic level”
Mean over 30 frames + 2 DCT{30 frames} components
1conv4w-1conv4w





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Conclusion

- First experience on NIST evaluation

  Fusion of statistic scores at different time span levels

  ... But only successful (at deadline) at 30 ms level

- Promising results using Likelihood Ratio jointly with the skewness.

  ... With our system, skewness overvome log-LR scores

- Future .... Work on different time and frequency warping levels.

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