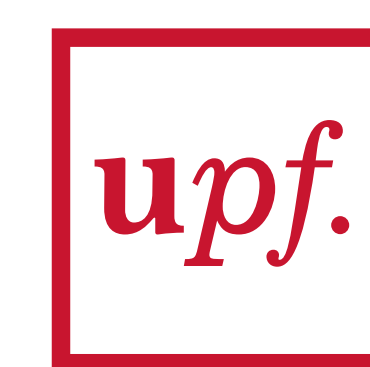


Searching Lyrical Phrases in A-capella Turkish Makam Recordings

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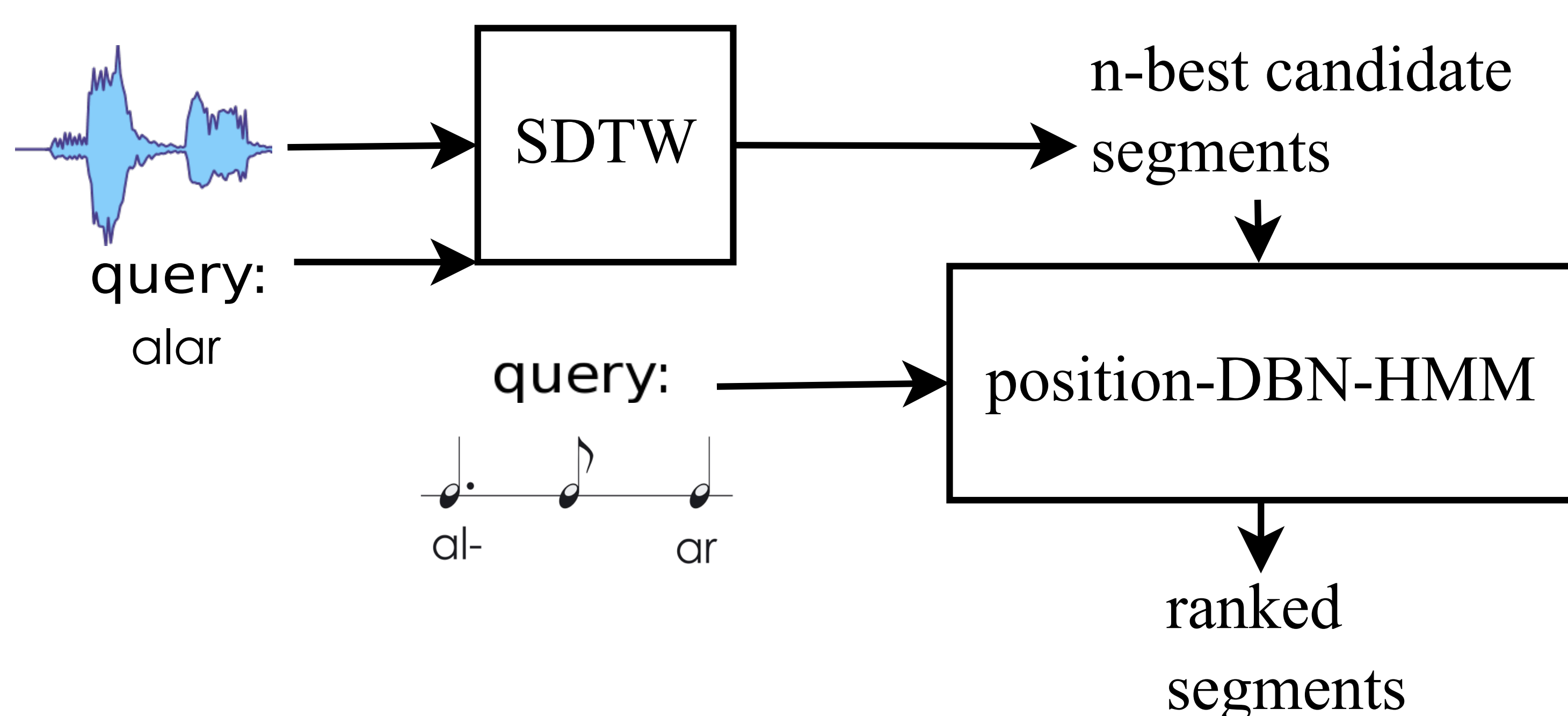


compmusic

Abstract

- locate occurrence of lyrics-phrases
- model syllable durations
- two stage search:
 - subsequence dynamic time warping (SDTW)
 - novel dynamic bayesian network hidden Markov model (DBN-HMM)
- query phrases: structural sections

Methodology



Dataset

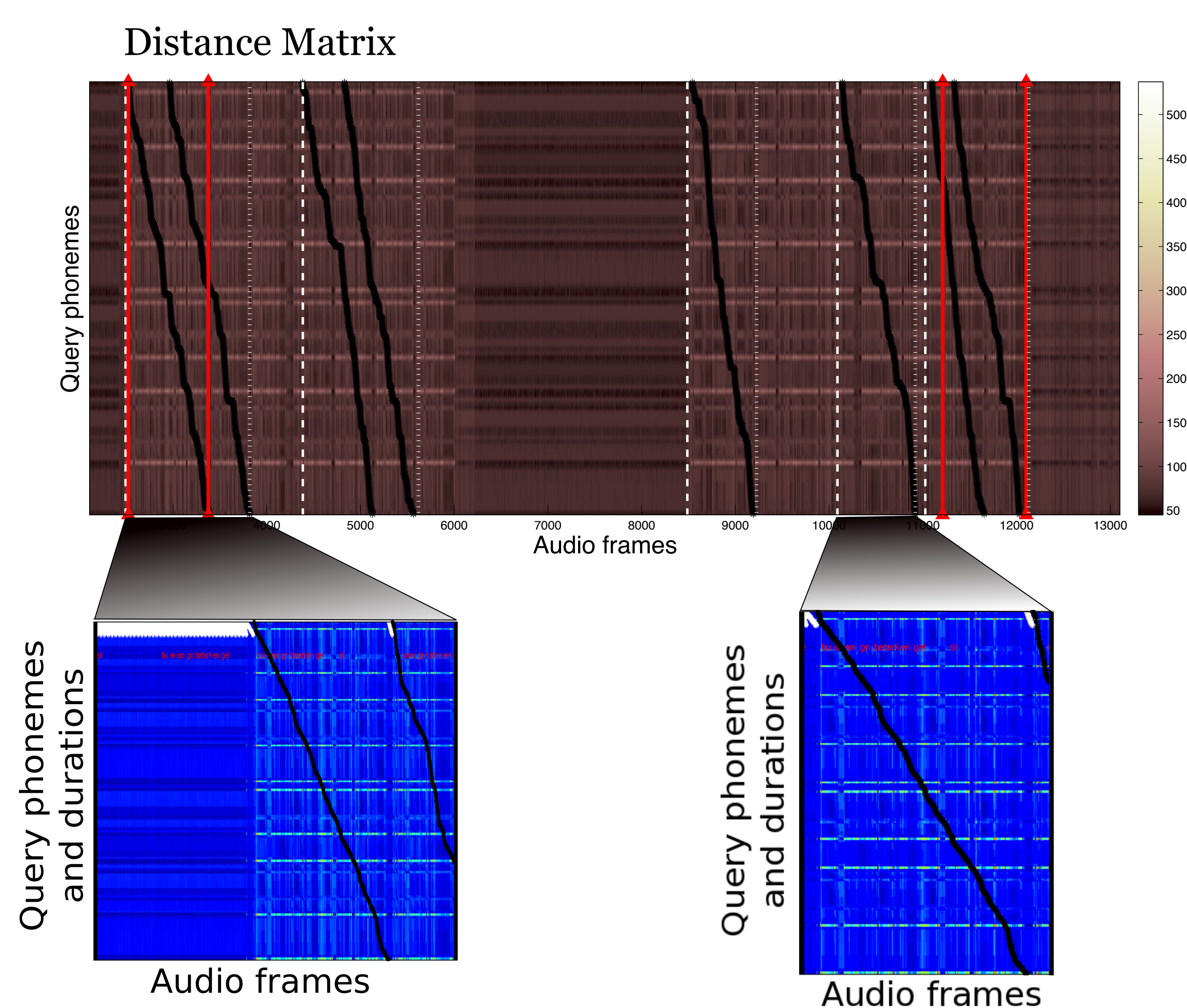
Training Corpus

~500 minutes Turkish speech

Test Corpus

<http://compmusic.upf.edu/turkish-makam-acapella-sections-dataset>

12 a-capella recordings, ~18 mins

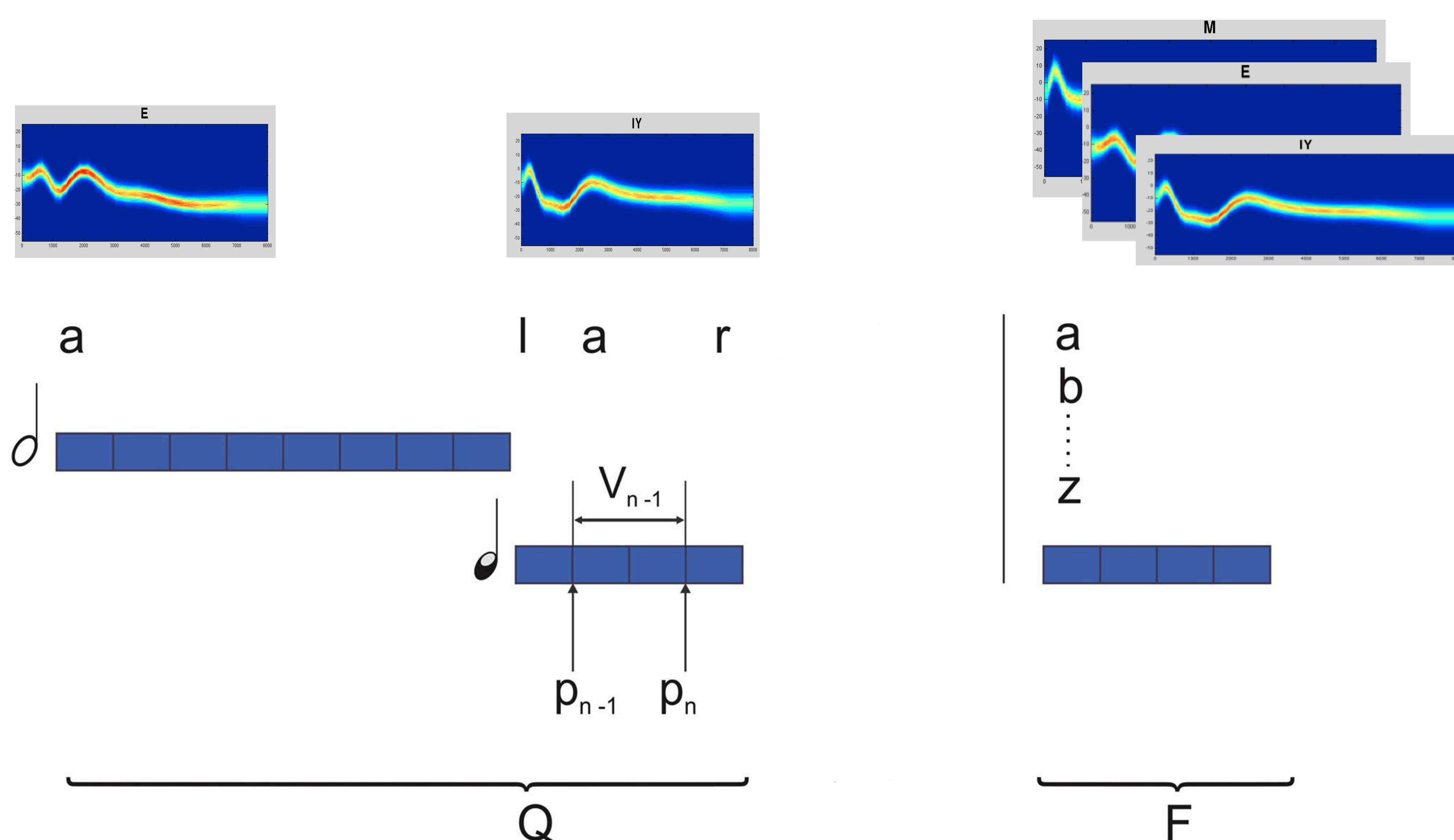


Dynamic Bayesian Network

MFCCs + GMM

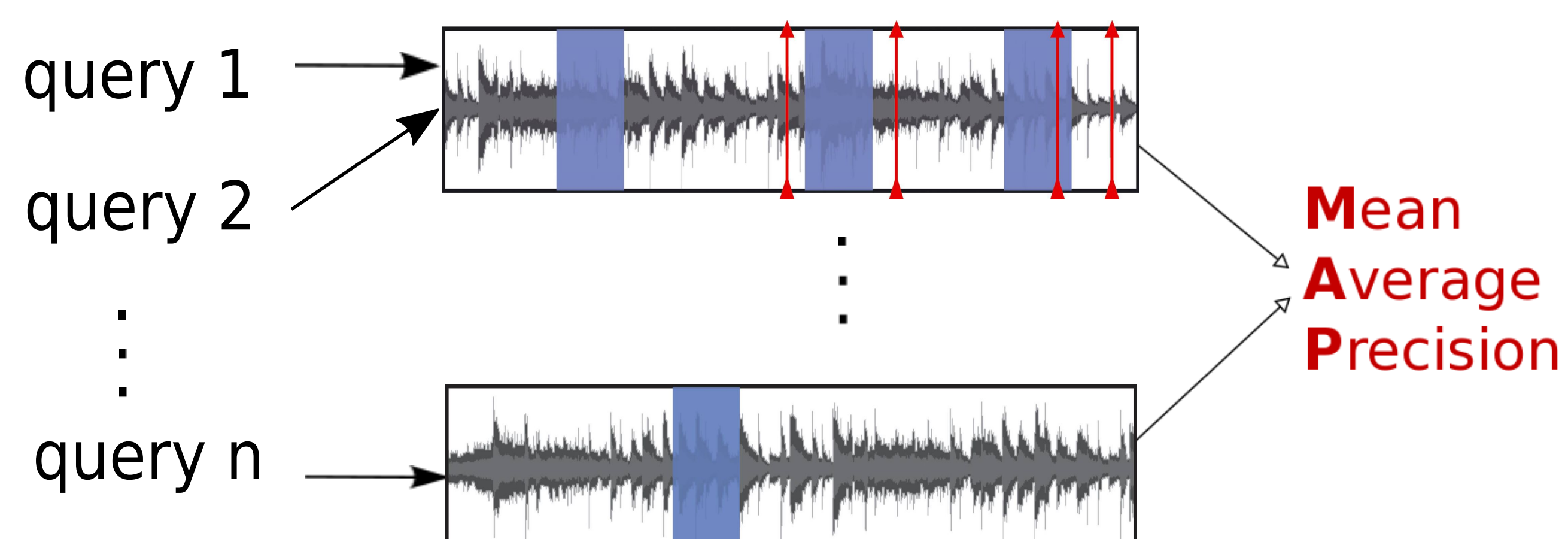
instantaneous tempo

position in section



$$P(s_n | p_{n-1}, s_{n-1}, p_n) = \begin{cases} P(s_n | s_{n-1}), & p_n \leq p_{n-1} \\ 1, & p_n > p_{n-1} \text{ \& } s_n = s_{n-1} \end{cases}$$

Evaluation



Results

Conclusion

- novel score-informed model proposed
- SDTW + DBN-HMM outperforms SDTW alone