

# JRS at Hyperlinking of Television Content Task

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## Approach

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### Generate basic links based on text and metadata

- Inputs: subtitles or ASR transcripts, metadata (synopsis)
- Text preprocessing: remove punctuation, normalize capitalization, remove stop words/very short words
- Obtain set  $T$  of terms found in DBpedia
- Add synonyms  $S_T$  for terms  $T$  from WordNet
- Select connected entities  $C_T$  for the terms in  $T$  from FreeBase
- For geographic locations  $T_g \subset T$  (as identified by FreeBase), select related geographic entities  $G_{T_g}$  from GeoNames

- Weight for matching as follows:

$$\begin{aligned} w(t) &= w_o, t \in T, \\ w(t) &= w_g, t \in G_{T_g}, \\ w(t) &= w_s, t \in S_T \cup C_T, \text{ with } w_s < w_g < w_o. \end{aligned}$$

- For multiple occurrences per segment, determine total weight as

$$\hat{w}(t) = \sum_{k=1}^K (1/k)w(t)$$

Total similarity between segments  $v_1, v_2$  determined as

$$\sum_{t \in T^*(v_1) \cap T^*(v_2)} w(t)$$

- Use fixed segments of 20 seconds

### Use of visual concepts (in some runs)

- Treat as text annotations
- Concepts only or subtitles/ASR plus concepts

### Rerank based of visual matches

- Use VLAT signatures of SIFT descriptors (from DOG points)
- Every 5<sup>th</sup> frame (using one field when interlacing artifacts are present)
- Rerank top 50 segments

## Experiments

### Eight pairs of runs

- Pair: one with anchor segment, one with context segment (+/- 3 minutes)
- 4 runs: subtitles and the different text resources
- Visual reranking for subtitles and LIMSI
- Visual concepts with subtitles and visual concepts only

- More differences between anchors
- More differences between different text resources
- Large difference between anchor only and context for some runs
- Overall, context is only slightly better
- Visual reranking adds slight improvement
- Visual concepts: cannot be treated like other annotations, not sufficient on their own, no improvement when added to text

### Results

- Text only methods are very similar to those used in 2014: results are overall worse

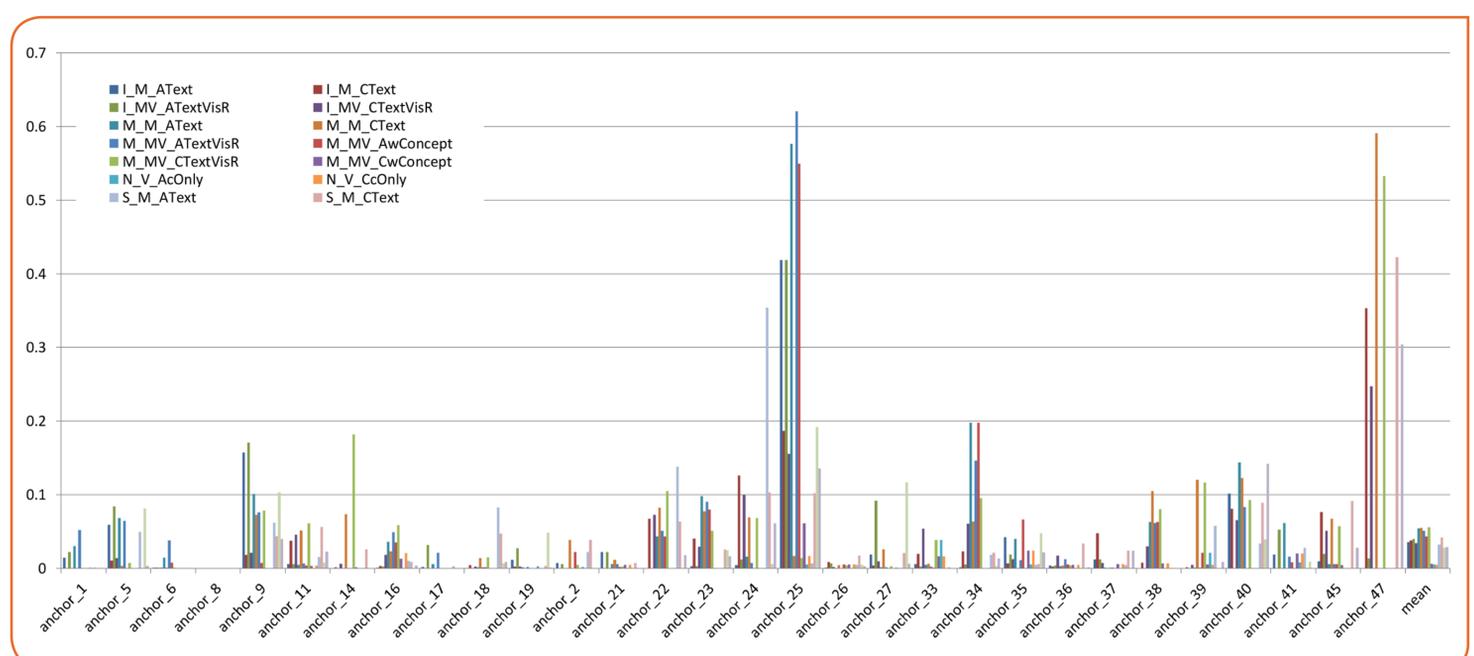


Fig. 1: MAP of submitted runs



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