Video Copy Detection by Fast Sequence Matching
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INTRODUCTION

Find segments of a query video that are copies of the videos in a database

BACKGROUND

Video representation \( X = \{x_1, x_2, ..., x_n\} \)
- Frame sampling
- Extended Markov Stationary Feature [CVPR '08]

Matching two frame sequences
- Edit distance
- Effective but slow

METHOD

Extend the edit distance for finding local alignments
\[
S(i, j) = \max \{ 0,\]
\[
S(i - 1, j) + v(x_i, 0),
S(i, j - 1) + v(0, y_j),
S(i - 1, j - 1) + v(x_i, y_j) \}
\]

Propose a fast local alignment method along with a dedicated index structure

RESULTS

<table>
<thead>
<tr>
<th>Method</th>
<th>ST1 score</th>
<th>ST2 score</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVR07 Teams</td>
<td>0.46~0.86</td>
<td>0.17~0.86</td>
</tr>
<tr>
<td>Ours</td>
<td>0.86</td>
<td>0.76</td>
</tr>
</tbody>
</table>

CONCLUSIONS

- The sequence matching technique is effective for measuring the dissimilarity between videos.
- A two-step approach is proposed to significantly speed up the edit-distance-based approaches.

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