Video Matching Technology

Video Processing and Video Compression Technologies

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Technology Target Areas

- Search video fragments in video database “by example”
- Find duplicates in video database
  - Leave only best quality video
  - Database size reduction
- Build effective indexes of large video collections
- Copyright examination
Technology Characteristics

- Robust on deformed video
- Small size of video database description
  - 700 Mb film – 50 Kb description
- Fast searching
  - Logarithmic search time
- Works well with both small half minute fragments and full-length films
- Fully automatic
Video Deformations
Examples

- Brightness/Contrast
- MSU Smart Brightness
- MSU Old Color Restoration
- MSU Noise Generator
- Original recompression
- MSU Noise Generator
- MSU Smart Sharpen

Matching probability

Correct Matching
Best Wrong Candidate

Test number
0 1 2 3 4 5
Video Deformations

Black Borders

![Graph showing matching probability vs strength]

- Correct Matching
- Best Wrong Candidate
Key Features

- Fully automatic
- Supports wide set of video deformations:
  - Brightness shift or equalization
  - Hard noise (different types)
  - Compression artifacts
  - Different resolution
  - PAL/NTSC support
  - Black borders (letter box)
  - etc.
- Compact database representation
- Works without original database films
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