PIVOT VECTOR SPACE APPROACH FOR AUDIO VIDEO MIXING

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INTRODUCTION

• Automatic audio-video mixing technique.

• Very effective for home videos.

• Uses pivot vector space mixing frame work

• High level perceptual descriptors
AESTHETIC ASPECTS

- Setting the scene (To create atmosphere of time and place)
- Adding emotional meaning
- Serving as a background filler
- Creating continuity across shots or scenes
- Emphasizing climaxes
VIDEO AESTHETIC FEATURES

- This consists of features which required to describe videos.
  - Light falloff
  - Color features
  - Motion vectors
- These features exist independently of a particular representation format.
COLOUR FEATURES

- Consist of four features:
  1) Saturation
  2) Hue
  3) Brightness
  4) Energy

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ZERO CROSSING

• Measure of the frequency content of the signal

\[ ZCR = \frac{1}{N} \sum_{m} |\text{sgn}[s(m)] - \text{sgn}[s(m-1)]|w(m) \]

where, \( \text{sgn}(x) = \begin{cases} 1 & \text{if } x \geq 0, \text{ and } -1 & \text{if } x \leq 0, \end{cases} \)

and \( w(m) = \begin{cases} 0.5(1 - \cos(2\pi \frac{m}{N-1})) & \text{if } 0 < m < N - 1, \\ 0 & \text{otherwise} \end{cases} \)

w(m):- hamming window
s(n):- Audio signal
N :-Frame length
PIVOT REPRESENTATION

- A vector space acts as a pivot between the audio and video representation.
- Independent of any media.
- This space is defined with some aesthetic features in which music and videos are mapped.
- It consists of a media representation and pivot space mapping
PIVOT SPACE MAPPING

- The mapping going from video-attributed aesthetic feature space to the pivot-attributed aesthetic feature space.

- Cause rotation or projection

- The mapping is incremental.

- The extraction of new videos preserve all the existing mapping of music parts.
PIVOT VECTOR REPRESENTATION

Video-attributed aesthetic feature space

Music-attributed aesthetic feature space

Pivot-attributed aesthetic feature space

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CONCLUSION

- This is a technique that all amateur and home video artists can use in the creation of video footage that gives a professional look and feel. Since it is fully automatic, the user need not worry about his aesthetic capabilities.