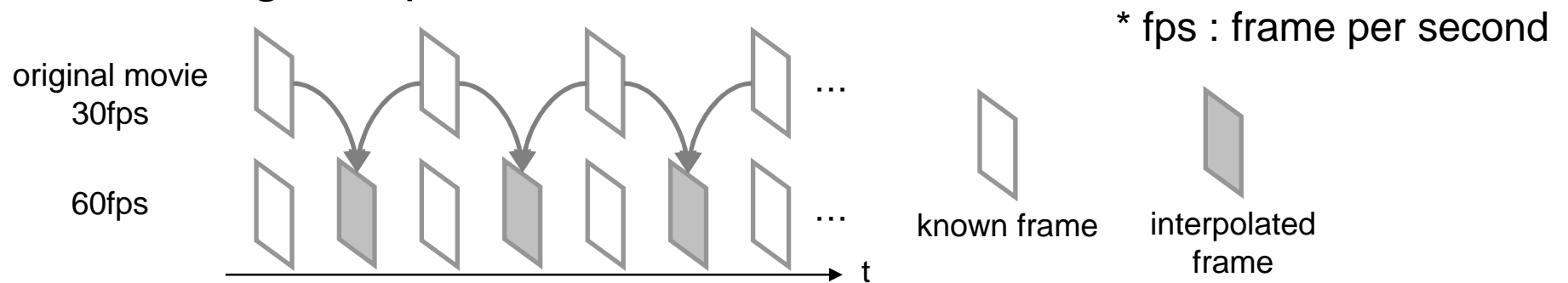


Background/Objective

- ▣ Advances in the quality of LCD
 - ▣ Frame rate up conversion is used to obtain high quality movie
- ▣ Frame Interpolation
 - ▣ Create a frame between two known frames of an image sequence



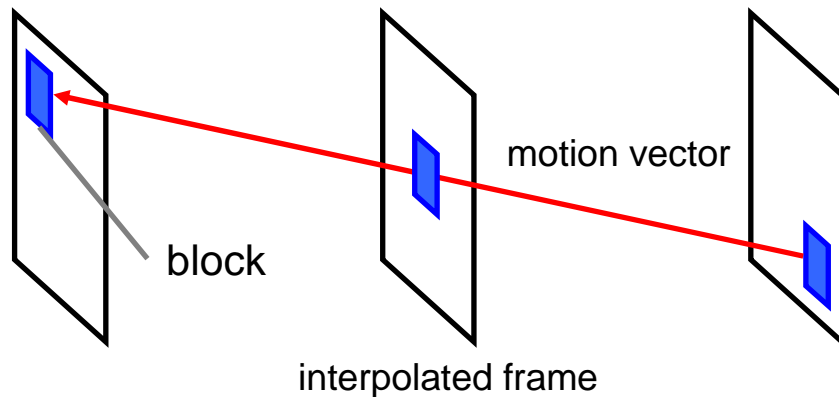
- ▣ Existing method: based on block matching
 - ▣ Suffering from block noise

A block-noise-free frame Interpolation method is proposed.

Abstract of existing or proposed method

Existing method

- based on coding schemes such as MPEG series



1. calculate motion vector based on block matching

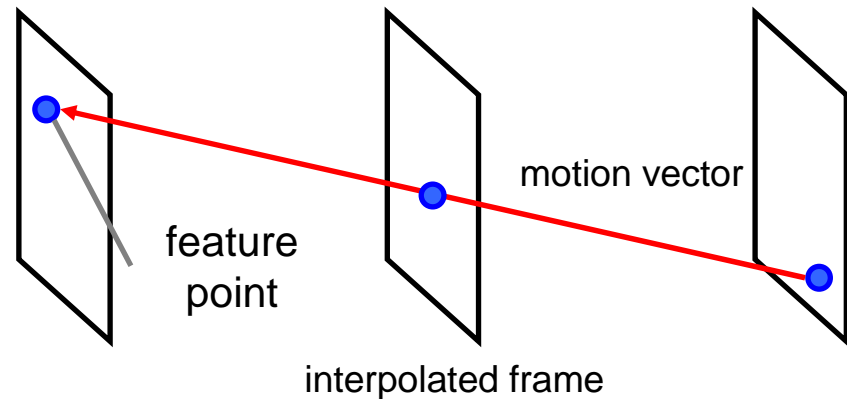


2. interpolate a frame block by block

- Not true motion vectors
- Block noise occurs

Proposed method

- based on feature tracking



1. calculate motion vector based on feature tracking

- extract feature point
- track feature point

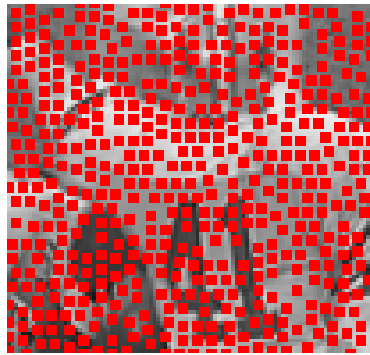


2. interpolate a frame pixel by pixel

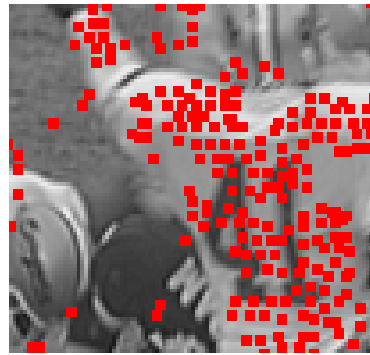
- Reliable motion vectors
- Block noise free

Example of the proposed method

Interpolates 47th football image by using 46th and 48th



feature points (#46)



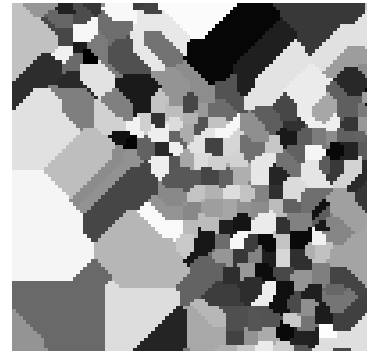
Tracked feature points (#48)



original frame (#47)



motion vector



region interpolated by same motion vector



interpolated frame

Comparison with other methods

- Avr:interpolates a frame by averaging previous and next frame
- BM:method based on block matching

sequence name	Avr [dB]	BM [dB]	Proposed [dB]	Proposed-BM [dB]
bus	19.37	22.56	25.59	+3.03
football	21.38	23.31	24.49	+1.18
foreman	29.37	32.65	33.56	+0.91
hall	36.23	36.49	37.17	+0.68



Avr



BM



Proposed