INTRODUCTION

Video deinterlacing is a key technique in digital video processing, particularly with the widespread usage of LCD and plasma TVs. Though interlaced videos conserve transmission bandwidth, they are mainly suited for analog display units.

We propose a novel method switching algorithm to perform video deinterlacing.

![Fig 1. Interlaced Videos](image1)

![Fig 2. Deinterlacing](image2)

PROPOSED APPROACH

The proposed approach uses a method switching procedure, choosing a different interpolator for particular regions of the video. The model is described by the following equation:

\[ F_n(i,j) = \begin{cases} F_{n-1}(i,j) + F_{n+1}(i,j), & d_n(i,j) < t \\ \frac{1}{2} \sum_{m} F_{n+m}(i,j), & d_n(i,j) \geq t \end{cases} \]

In the above equation, each color represents a particular region of a video along with the choice of its interpolator.

Region 1:
- Region 1 interpolates for the static regions of the interlaced video using its temporal neighbors.
- To identify the static regions we find the absolute difference between the previous and current frames and threshold it to 1 bit.
- The interpolator used is the temporal line average.

Region 2:
- This region is characterized by the non-salient and non static regions of the video.
- The saliency map \( S_n \) is found using methods similar to those proposed in [5].
- The interpolator used is the spatio-temporal VTF.

Region 3:
- This region interpolates the salient region of the video using a purely spatial interpolator, the 1DCGI[6].
- 1DCGI estimates displacements \( \alpha \) such that,
  \[ I(x + \alpha, y + 1) = \frac{1}{2} [I(x, y) + I(x + 2\alpha, y + 2)] \]
- Interpolation is now performed along the displacement \( \alpha \).

![Fig 3. Serration Effects](image3)

![Fig 4. Saliency Map for the Mother image](image4)

![Fig 5. 1DCGI interpolator](image5)

EXPERIMENTAL RESULTS

- A method switching deinterlacing algorithm was proposed that tackles particular regions of a video with different interpolators.
- The results show that the proposed algorithm performs better than the state-of-the-art algorithms both in the PSNR sense and in the visual sense.

![Fig 5. PSNR comparisons](image6)

CONCLUSION

![Fig 6. STELA vs. Proposed.](image7)

REFERENCES