

Matlab Project #1 – Cliplets

Introduction

Cliplet [1] is a merge of movie and static image. The goal of the cliplet is to emphasize some Dynamical Interesting Part *DIR* in a Movie $M[m, n, k]$. The user selects the spatial Region Of Interest *ROI* that contains *DIR* and chooses the sequential number k^* of a Frame F ($F[m, n] \triangleq M[m, n, k^*]$) for a static background. The Cliplet C consists of the static background F superimposed with the moving *DIR* in the region *ROI*:

$$C[m, n, k] \triangleq \begin{cases} DIR[m, n, k] & \text{if } (m, n) \in ROI \\ F[m, n] & \text{if } (m, n) \notin ROI \end{cases}$$

Task

We need to implement a program that generates a cliplet.

The function has the following format:

[] = cliplet(*File_C*, *File_M*, x_c , y_c , w , h , k_{star});

where *File_C* is the filename of the generated cliplet, *File_M* is the filename of the input movie M , (x_c, y_c) are the coordinates of the center of *ROI*, w is the width of *ROI*, h is the height of *ROI*, and k_{star} is the sequential number of the frame F in the movie M .

Simplifying assumptions

We assume several simplifications with respect to the program implemented in [1].

1. We assume that *ROI* has rectangular shape (and not arbitrary shape).
2. We don't need to program input and output timing. The number of frames in C and M is equal. (No frames of M are discarded and time scaling is not done.) Also, the spatial dimensions of C and M are equal.
3. No GUI programming is needed.
4. The program has to work with one movie file format (e.g., AVI or MPEG).
5. The format of the generated cliplet needs to be "animated GIF" [2]. (In order to view the animated GIF, you can open it in a web browser, i.e. Internet Explorer/Firefox.)

Submission

You have to submit the Project Report (with the code included in printed form) at 19/03/2013 at the lab (from 13:00 until 14:00) or on the Video Processing lesson (at the breaks between the lectures).

References

- [1] <http://research.microsoft.com/en-us/um/redmond/projects/cliplets/index.aspx>
- [2] <http://www.mathworks.com/support/solutions/en/data/1-48KECO/>