

## Learning video editing from examples



### Advisor

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### Context

Developers of interactive 3D applications, such as computer games, are expending increasing levels of effort on the challenge of creating more and more realistic experiences in virtual environments. In recent years, there has been a clear move in games towards a more cinematographic experience, by recreating and reusing the narrative devices of conventional movies (importance of cut-scenes, continuity editing in the shots) emphasizing specific dimensions such as tension or fear for instance.

### Objectives

In this master internship, we propose to learn algorithmic models of video editing from real examples of carefully chosen movie scenes. Such real examples will be augmented with an annotation scheme consisting of (1) the identification of classical shots (panning shot, dolly shot, crane shot, etc.); (2) a detailed description of screen composition (positions and orientations of all actors and objects) and (3) a narrative summary of the action taking place in the scene.

The main difficulties consist in:

- identifying and extracting a set of meaningful parameters from real movies
- building an expressive editing model that learns from this set of parameters
- evaluating the quality of the model in its application to interactive virtual environments

The proposed algorithmic models will extend our previous work in camera composition [1,2] and video editing [3,4]. New methods will be developed to

automatically extract suitable representations from real movie examples, using recent advances in object recognition [5] and human pose detection [6].

This research is expected to shed light on the theory of film editing, and lead to a PhD addressing such topics as automatic generation of cinematic replays in video games and automated video editing of home movies.

## References

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