Interaction Techniques for Reviewing Automatic Video Annotations

Duration: 4-6 months
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This internship is part of the PerfAnalytics project (ANR PIA-PPR 2020) that consists of a collaboration of various Inria teams, universities, and institutes such as INSEP (French institute for sport and performance), as well as several French sport federations.

Description

Video annotations such as chapters or time marks situating specific events facilitate reviewing significant sequences. Quantitative annotations, such as the number of hits landed by a professional boxer on their opponent, enable performing statistical analyses to summarize the video content. Several tools support manual annotations [1], [2], while others focus on automatic methods [3]. Hybrid approaches [4] consist in providing annotators with automatic annotations to review. If these annotations are precise, this should facilitate the annotator task, but if they are not, it might hinder it as they must analyze each annotation, understand its flaws, and correct it, instead of creating an annotation from scratch.

The candidate will investigate interaction techniques to simplify the process of reviewing automatic annotations. The automatic annotations will be simulated to focus solely on the interactions. These techniques will enable to review a set of annotations and validate or edit them while minimizing the cognitive load induced. Once techniques are designed and implemented, the candidate will run user studies comparing them to manual annotation methods to assess their benefits and disadvantages.

Objectives

- Design and implement interaction techniques to review automatic video annotations.
- Design and implement an experimental system to evaluate the benefits and disadvantages of these techniques.
- Design and run user evaluations to gather quantitative data and run statistical analyses on the user performance when using various interaction techniques.

Candidate

The candidate must show interest in Human-Computer Interaction and demonstrate knowledge in programming interactive environments. They will have the opportunity to manipulate and apply related work on interaction techniques and will participate actively in the design of experiments and evaluation protocols established in HCI.

References