

## Framework for cost simulation of automated information extraction tools

### Overview

This result is about the development of a generic simulation software able to analyse costs connected with the correction of results of automated information extraction tasks.

### In depth description

Real media production processes are a complex combination of human factors and system operations, and as such quite distant from the aseptic laboratory settings in which automatic information extraction tools are developed. Furthermore, workflows are the result of established practices that involve not only practical technical constraints but also personnel-related issues like shifts, contractual regulations and professional roles. As a result, costs connected with workflows cannot be estimated taking into account individual operations, but considering the whole process. As a consequence, expected workflow optimizations introduced by the introduction of automated tools cannot easily be assessed by just considering their individual performance (e.g., in terms of precision and recall).

The approach used to develop this result is then to simulate a typical automated information extraction task, namely that of classifying a segment of content. This generic task encompasses a relevant number of concrete cases, among which video and audio quality impairments detection, classification of content by visual concepts, content format and genre detection.

The result is a java program which receives simulation parameters in inputs and runs a series of simulations of the segmentation and classification task. The output of the simulation is a series of data tuples that connect the costs connected with results correction with the average performance of the automated system in terms of segment classification. An example of result is shown in Figure 4 where the performance of a video breakout classifier is compared to the different kind of costs (classification correction, segmentation correction and total).

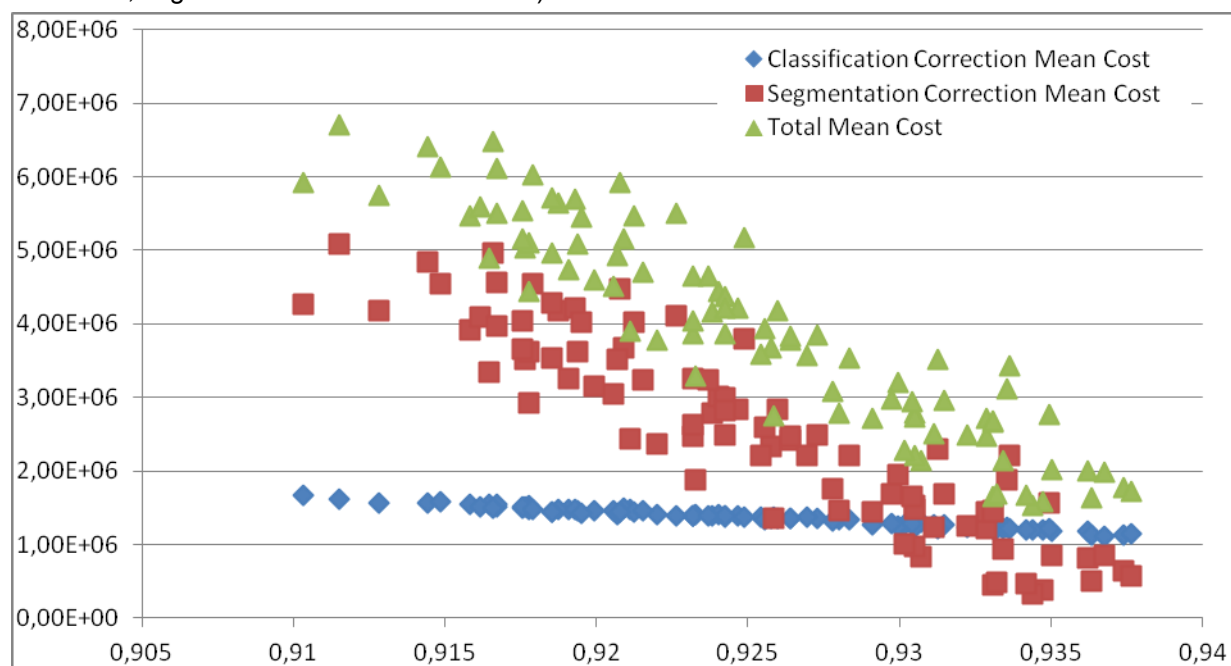


Figure 4: Simulated costs (y-axis) depending on classification accuracy (x-axis)

### Potential fields of Application

The result can be applied as an integrable component in software frameworks specifically targeted at the industrial implementation of large scale automated information extraction processes for media production and archiving.

**Possibilities for exploitation**

Exploitation of the result is mainly in collaborative research and innovation projects in the area of automated audiovisual content analysis in industrial contexts, or in collaborative industrial projects of the same area. The collaboration tool can be either in form of bilateral agreements between the owner and interested parties or of collaborative consortia in the context of funded research and innovation projects.

**Further Information**

Further technical information is available in TOSCA-MP public Deliverable D4.5 "Final version of benchmarking methods".

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