

# Design of a Framework for Computational Creativity in Time-based Visual Media

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When creativity is considered a form of intelligence, artificial creativity can be seen as a subdomain of artificial intelligence (AI). The creative process is dependent on many different factors including medium, topic, cultural aspects and interaction with the (creative) environment. Research of creativity is done in various fields, including psychology, cultural anthropology and computer science.

Much research has already been done on artificial creativity. For example, genetic algorithms have been designed that encode compositions in a certain artist' s style, such as Mondrian or Escher. As the program runs, many different instances of a generic composition are generated. "After the fact" evaluation is often done by a human observer or according to formal criteria. The domain we have chosen is that of time-based visual media, or video. Whereas traditional forms of visual art are usually static, the development of television and, more recently, multimedia technology has resulted in more dynamic approaches.

Video generation can be based on the generation of new graphics or on sampling of existing footage, or a combination of the two. Either approach requires the visual contents to be aligned and arranged on a timeline. Therefore, a narrative structure is necessary.

The main research questions we want to answer are:

- What dimensions are important for designing systems that creatively generate, select and arrange time-based media content into a semantically coherent and aesthetically appealing structure?
- Can evaluation criteria be effectively applied dynamically during the creative process instead of afterwards?

Our approach will be to define a theoretical model for video generation based on the research literature. We will then combine this theory with AI techniques such as reasoning and machine learning to design a framework and build a prototype implementation. Topics we plan to research are generation of visual content, selection and composition of generated and existing footage, digital media technology and cultural aspects of creativity in dynamic visual media. More philosophical issues, for example authorship, are beyond the scope.