Constraints for multimedia artistic applications
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This special issue is devoted to the application of constraint techniques in the large to the field of multimedia. There are a number of reasons why this unusual coupling (constraints/multimedia) makes sense today. Firstly, constraints have long been used in artistic domains, music in particular, with a great deal of success. These works have often addressed difficult knowledge representation problems dealing, in particular, with non flat domain structures (e.g. musical notes), temporal phenomenon, multi-level structures, in a combinatorial setting. The results are significant enough - and sometimes spectacular - to be made available to the constraint community at large.

Secondly, the multimedia domain - traditionally considered as a minor branch of computer science research - is now gaining more substance and starts to be considered more seriously, probably because of a recent change in the information society, which is gradually shifting from services to entertainment. The recent emergence of multimedia standards which allow for the representation of symbolic information (e.g. metadata in Mpeg-7 for instance) is another sign that entertainment, and hence multimedia, are becoming a serious field of application and investigation.

Lastly, we are convinced that constraints can - and should - be applied to a wider range of domains than what has traditionally been the case. This is necessary not only for extending the applicability of existing techniques, but also – and more importantly - to open new areas of research.

All these reasons motivated us for organising a workshop on constraints and artistic applications at the ECAI 98 conference in Brighton. The workshop was successful and the outcome substantial enough to decide us to publish and make accessible its content to a wider community. This issue contains a selection of the contributions to the workshop. All the contributions were rewritten, and submitted to a reviewing committee through the usual review process.

Music has been the first artistic domain to be investigated by the community of constraints, and is still probably the most active. This resulted in non homogeneous repartition of contribution in the workshop as half of them dealt with music (6 out of 10). In the context of this special issue, we decided to artificially balance this uneven repartition, by selecting only 2 contributions related to music: Detlev Zimmerman's work, which consists in augmenting a constraint system for harmonisation with an intentional structure. Zimmerman shows that this coupling allow to produce music more naturally, and also much more efficiently than using only constraints. The paper by Alvarez and al. describes a calculus for concurrent constraints specially designed with musical applications in mind. We also included a survey on harmonisation systems and constraints, by F. Pachet and P. Roy. The survey focuses on the main musical problem that interested many researchers at the intersection of the music and constraint areas: musical harmonisation.

The other papers deal with non musical domains: Zsofia Ruttkay 's contribution addresses the issue of facial animation and advocates for the use of constraints for specifying animations more easily (e.g. a smile is constrained to be «symmetric»). Jourdan and al. propose to use constraints for specifying and computing the spatial and temporal layout of multimedia documents.

We hope that this special issue will provide interesting information and exciting ideas to the reader, and perhaps suggest new areas of applications or research.

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