

Ninth Triennial Conference of the European Society for the Cognitive Sciences of Music

Abstract submission for spoken paper/poster presentation: Empirical research

- i) Title: ***Affective calibration of a computer aided composition system by listener evaluation***
- ii) Topic areas: 5. Composition and improvisation, 17. Music and Emotion, 50. Other (Computer music or Listening tests)

Background

Affectively-driven algorithmic composition (AAC) is an emerging field combining computer music research and psychological approaches to music cognition [1], [2]. AAC systems attempt to communicate or induce specific emotions in the listener by creating novel music. Here we report on a listener evaluation of one such system under development.

Aims

- To evaluate the composition of novel, affectively-driven music by an AAC system
- To investigate the inter-relationships between various musical features and their subsequent influence on listeners' affective responses to music generated by the AAC system
- To determine the widest range of affective responses that might be targeted by the AAC system

Method(s)

A series of affective mappings (musical features with emotional responses) were drawn from literature and implemented in an artificial intelligence driven composition system. These mappings utilize sixteen 'modes of operation' which correspond to a time series of musical features with varying ratios, intended to evoke particular affective states on the 2-Dimensional circumplex model of affect (Valence, V, and Arousal, A) [4]. The system uses these mappings to inform the generation of new music according to an affective target, as a polyphonic piano score.

A tri-stage listener evaluation was then used to inform two levels of subsequent calibration of the affective mappings until a broad spectrum of emotional responses was achieved.

Results

The size and spread of affective responses was gradually increased by deliberate manipulation of the ratio of musical features in the affective mappings. The listener responses suggested that a complex interaction between musical features derives the widest variety of emotional responses in the 2-Dimensional affective space.

Conclusions

Listener evaluation of an AAC system confirmed that affective targeting via novel musical material is possible by means of an underlying matrix of musical features. In this work the particular ratio of these features has been explored and adjusted in response to listener evaluation but the complex nature of the inter-relationship between these musical features and subsequent affective responses remains the subject of considerable further work.

Keywords

Emotion / affect
AI (Artificial Intelligence),
AAC (Affective Algorithmic Composition)

Word count: 348 (not including title / topic areas)

References

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