

# The Use of Metaphor in Interactive Systems for Singer-Songwriters

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## Abstract

Working with interactive systems for creation and performance of popular music offers several advantages to singer-songwriters. Such systems function as a partner in composition, allowing habitual patterns to be broken and extending the songwriter's 'idiolect' as well as their virtuosity. In performance, interactive systems afford expressivity, spontaneity and polyphony. Visual presentation of the system allows audiences to relate to the performance of the machine partner and invites deeper engagement.

The use of metaphor provides a starting point for shared understanding between composer/performer and audience, as well as serving to create a field of possibilities for the composer at the start of the composition. The metaphor opens up several pathways for further development of creative ideas, through software programming, lyric-writing, creating visuals as well as musical composition.

This study relates to theories and models of composition involving the generation and refinement of possibilities (Eno, 2004), collaboration with tools (Prior, 2009), working with interactive systems (Chadabe, 2007) the use of metaphor in music (Emmerson, 2007) and the relationship between composing music, writing lyrics, creating software and performing live.

Popular music (and increasingly art music) involves the consideration of its reception (Landy, 1994; Reeves et al, 2005) by an active, creative audience (Small, 1988; Joeonwon and Song, 2002). Central to the development of this work is considerations of how the audience will relate to the piece, particularly through the 'liveness' of the performance (Emmerson 2007, Sanden, 2013).

This study involved the exploration of singer-songwriter creative process when using a metaphor as the basis for both an interactive system and the composition itself. The selected metaphor was a physical model – as this provides an immediate point of shared understanding between performer and audience (Johnston, 2013), while complex interactions and polyphony ensure that some mystery and intrigue remains. The use of live instruments and voice with an interactive system allows the exploration of combining human and machine sounds, as well as the space between them (Estibeiro, 2015). While much current work in art music and human-computer interaction focusses on improvisatory systems, the use of interactive systems in the creation and performance of popular music remains relatively unexplored.

This study is part of a PhD project looking at the relationships between singer-songwriting, interactive music systems and liveness. The study uses a practice as research methodology (Nelson, 2013) that involves literature/media review, composition, system-building and performance.

A simple, physical metaphor was realised in software, and its behavior mapped to live input from a guitar. This allowed generation of musical ideas through improvisation. Further compositional developments took place with iterative stages of play involving software exploration and refinement, followed by further improvisation. Lyrics were generated that are rooted to the metaphor, along with additional output sounds. Score following algorithms allowed the system behaviour to evolve in real time during the piece, and reinforce its narrative and emotional message. Insights were also gained into the balance of real-time and non-real time agencies of the system and composer-performer.

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