

RESEARCH DIRECTIONS

Loudness moves!

Professor Roger Dean, Professor Kate Stevens and Dr Freya Bailes from the MARCS Institute will identify the role of loudness in the perception of structure, arousal and emotion in music. This project is funded by the Australian Research Council through the Discovery Projects grant scheme.

‘Control of the temporal changes of loudness is perhaps the only universal feature of music, since pitch, rhythm and timbre are all structured very differently in different cultures’, explains Professor Dean. ‘As music has power as a pro-social force, it is likely that loudness, its control and change, is central to the role of music in social interactions; this role may also operate in vocalised social exchanges. Nevertheless, musical and vocal loudness, a perceptual dimension, and their acoustic intensity, the closest acoustic/physical correlate, are poorly investigated in comparison with pitch, rhythmic structures and even timbre. We have evidence that loudness influences perception of musical change and affect, and have developed critical analysis techniques.’

The team will determine whether temporal patterns of acoustic intensity are largely responsible for the perception of continuous variations in loudness and of overall sonic change in music. They will investigate the degree to which changes in acoustic intensity lead to changes in perceived effort, energy and affect in music. And they will determine whether the temporal patterns in acoustic intensity show statistical commonalities between musical, vocal and environmental sound.



The research will reveal the degree to which intensity patterns are important in perception of musical change and affect. Such patterns will aid development of effective sonic symbols for commercial applications in music information retrieval. There are also potential applications to sonic icons which are key features of warning systems such as in an aeroplane cockpit.

Project Title: Loudness moves! Roles of changing acoustic intensity in the perception of music
Funding has been set at: \$254,000
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July 2012