

RESEARCH DIRECTIONS

Music to the Ear

Professor Roger Dean from the MARCS Auditory Laboratories is exploring the effects of who leads and who follows, and when, on music improvisation and creativity through a three year Australian Research Council Discovery project.

'Live music improvisation is a subtle and seemingly magical process of interaction and creativity that creates shifts in timing, texture, pitch and melody in music, often with no obvious cues of impending transition discernable by the listener' says Professor Dean. 'Improvisation is a real-time creative process. When groups or duos improvise they negotiate interpersonal interactions. These mimic archetypes of human co-operation in communication, involving both mutual understanding and pro-social behaviour. Improvisation is core to conversation and to creative and social growth. This project investigates musical improvisation and real-time decision making by using computers and cognitive approaches to find what underlies transitions and determine the significance of the social power relationships amongst the improvisers in the creative improvisation process.'

Professor Dean, who is also a composer/improviser, and the founder of the international sonic arts creative ensemble *austraLYSIS*, will use a specially designed grand piano with sensors for recording key movements and velocities, and pedal movements. This will allow him to record a performance as different sorts of sound files for computational analysis. It will also allow for recording of performance actions, revealing the duration and loudness of individual pitches as they are played. The piano will also be used to play back previously recorded pieces with which individual musicians and



groups can interact in real-time. Sophisticated computerised equipment and programs, mostly developed by Professor Dean, will be used to analyse the results.

The project will aid the design of appropriate educational and adult improvisational activities to improve the cognitive, social and creative abilities in individuals. This may, in turn, enhance Australia's social and cultural diversity and economic developments that rely on a community of creative and innovative thinkers and improvisers.

Project Title: Temporal segmentation, leadership and cognition in musical improvisation and creativity
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