
TACTICAL TEMPORALITIES: A LIVE CODING PERFORMANCE

ANDREW R. BROWN

Griffith University
Brisbane, Australia

andrew.r.brown@griffith.edu.au

Keywords: Music, Performance, Live Coding

Tactical Temporalities is a semi-improvised live coding performance that manipulates algorithmic descriptions of musical processes in the context of an Algorave setting. The work employs algorithms developed through research into musically salient computational processes and insights from studies in music perception. These are combined into a interactive performance that manages the dance of agency between the human musician and semi-autonomous computational systems. Stylistically, *Tactical Temporalities* is metrically regular, harmonically diatonic and utilises electronic and sampled timbral elements typically of those employed in electronic dance music.

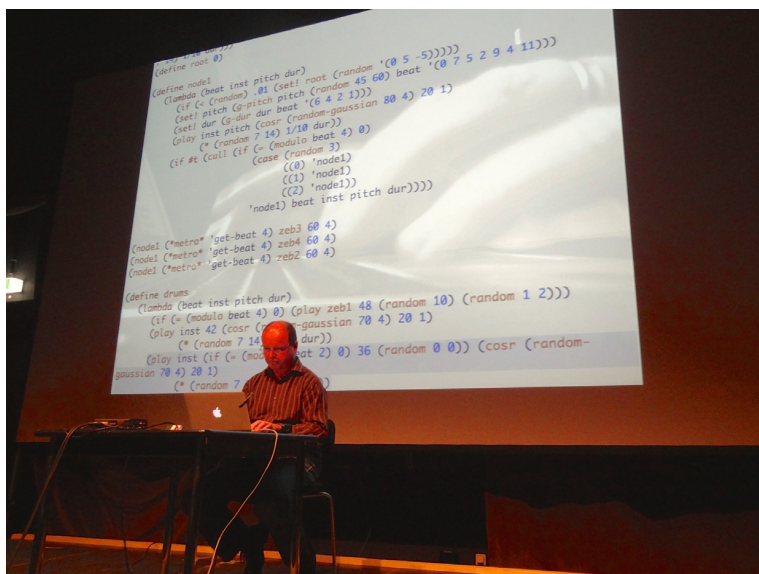
1. INTRODUCTION

The live coding performance of *Tactical Temporalities* is a study in minimalist rhythmical structures. The work is a semi-improvised musical performance that is a practical outcome of research into musical structures and their succinct description as computational algorithms. The work focuses on subtle shifts in musical texture designed to induce an engaging but largely uninterrupted flow of attention underscored by a consistent trance-like pulse that affords “dancability” in the Algorave context. Elements available for modulation and variation by the performer include sound timbre, rhythmic complexity, melodic contour, harmonic stability, textural density and more. As is typical with a livecoding performance the music is described and managed as a textual representation in a general-purpose computer programming language which is projected for the audience to see, as shown in figure 1.

xCoAx 2014

2014.xCoAx.ORG PORTO, PORTUGAL COMPUTATION, COMMUNICATION, AESTHETICS AND X





2. PSYCHOLOGICALLY INSPIRED TECHNIQUES

The algorithmic music practices explored in this live coding performance include techniques that can be concisely implementable and are open to improvised modification (Brown and Sorensen 2009). Many of these techniques are psychology-inspired (Brown, Gifford and Davidson, in press) and seek to expose musically salient parameters to facilitate control during live performance. The practical constraints of live performance act as a filter on the types and complexity of the musical and psychological theories that can be applied. Indeed many of the individual techniques are simplistic, however in keeping with the Gestalt psychology perspective, the performance hopes to demonstrate that their use in combination amounts to more than their sum.

3. RHYTHMIC EXPECTATION

Music is often pulse-based and Western music theory highlights that durations are generally simple multiples or divisors of this pulse. In music psychology the phenomenon of pulse, and durations that are simple ratios of pulse, have been demonstrated to exist outside of any cultural music context by various “tapping” tests (e.g., Fraise 1984). This performance leverages these simple mathematical properties of musical rhythm to create and vary onset and durational characteristics of musical parts. In particular much is made of what Justin London (2004:18) describes as the “temporal perspective

Fig. 1 The author performing at the Live Code Festival in Karlsruhe in

model”, developed by Mari Jones. In the terminology of this model a temporal pulse serves as the referent time period that “anchors” our temporal attention. Subdivision and larger groupings of the referent period are perceived as such. Conforming to, or deviating from, this model allows for the managing of varying degrees of rhythmical coordination. This performance explores algorithms based on this model and focuses on use of regular metrical organisation with variations in syncopation and hypermetrical structures as are typical in electronic dance music styles appropriate for the Algorave context.

4. PITCH AND HARMONIC ORGANISATION

The performance stays largely within the tradition of symbolic music making in a Western tonal and metric setting. As such it is concerned with pitched material in a diatonic context. The performance draws on techniques for generating pitch and harmonic material that have been inspired by theories of pitch class set theory and music perception, in particular on theories of proximity, goal seeking, good continuation, context sensitivity, and closure (Brown, Gifford and Davidson, in press). These principles are applied to the generation of melodic contour, harmonic language and progressions, and phrase endings.

5. PERFORMATIVITY AND AGENCY

Live Coding performances challenge our understanding of creative agency – the opportunities and responsibilities for decisions and actions in creative activities – which is reshaped by the live coding relationship with the computer where creative control is shared with a semi-autonomous computer system. In Live Coding performance the degree of agency handed over to the computer is managed by the performer but is constrained by the need to have the computer continually produce sound that allows the performer to generate new, and manipulate existing, algorithmic structures. This interactive relationship with the computer is differentiated from those typical of acoustic instrumental performance, where the “material agency” of the technology is usually fixed prior to performance. The Live Coding context allows the performer to experiment with what Pickering refers to as the “dance of agency” and is an example of emerging digital arts practices that explore what Pickering suggests is a

fundamental aspect of the human condition; that we “as human agents, manoeuvre in a field of material agency, constructing machines that... variously capture, seduce, download, recruit, enroll or materialize that agency, taming and domesticating it, putting it at our service, often in the accomplishment of tasks that are simply beyond the naked human minds and bodies, individually or collectively” (Pickering 1995: 11–12).

6. CONCLUSION

The performance of Tactical Temporalities is part of an ongoing research process that explores live coding as artistic expression. In particular the constraints of an improvised and performative context bring into focus questions of representation, expression and interaction. The practicality of solutions to these issues, particularly those derived from theories of music perception, are explored through and demonstrated by this performance.

REFERENCES

- Brown, A. R., & Sorensen, A.** “Interacting with Generative Music through Live Coding”. *Contemporary Music Review*, 28(1), 2009, 17–29.
- Brown, A. R., Gifford, T., & Davidson, R.** *Psychology-Inspired Techniques for Generative Melodies*. *Computer Music Journal*. In Press.
- London, J.** *Hearing in Time: Psychological Aspects of Musical Meter*. Oxford: Oxford University Press. 2004.
- Pickering, A.** *The Mangle of Practice: Time, Agency and Practice*. Chicago: The University of Chicago Press. 1995.