
EDITORIAL

To a practising composer the term 'frequency domain' must refer primarily to the ways s/he organises pitch material. Additionally, to the experienced electroacoustic composer, it will refer to the treatment of the spectral content of sounds used, which may or may not be a conscious act within the compositional process.

An earlier issue of *Organised Sound* took the time domain as its theme. This was, and remains, a topical matter for those working with contemporary techniques for the composition and performance of electroacoustic music. The direct synthesis of sound through the modelling of the emergent time-domain behaviour of systems is well represented in current research. Examples of this kind of approach include physical modelling and genetic algorithms. Granular synthesis is also firmly established as a technique based on the definition of elements of sound distributed over time.

All of these time-domain methods are convenient for the system designer, and musicians, being pragmatic people, are willing to explore the musical possibilities thus presented. Yet every signal-processing operation can be viewed in both the time and the frequency domains – the two domains are merely different aspects of the same process. Furthermore, we are told that the cochlea is essentially a frequency-resolving device. It is therefore perhaps arguable that an approach based on frequency domain methods presents more direct musical possibilities, involving the art of manipulation of perception, in contrast to the system-oriented techniques of time-domain processing.

Certainly there is an honoured tradition in electroacoustic music of composition with perceptual models using tools such as the phase vocoder. What is the longer-term prognosis of such tools? Is it true that the frequency domain is eclipsed by the time domain, or is this an inaccurate interpretation of current work? It is a central tenet of classical knowledge-based systems that the means used to represent a problem radically affect the likelihood of finding a solution to the problem. Are we therefore in danger of missing out on valuable approaches to musical problems by not taking a balanced view of the techniques at our disposal? Is it correct to say or

imply that such an unbalanced approach exists in contemporary practice? If not, what ideas are being developed specifically in relation to the frequency domain?

We wished to explore these concepts in this issue of *Organised Sound*. We are delighted to report that the articles which we received as a response to these questions indicate that the frequency domain is very definitely alive and well! It clearly figures prominently in the thoughts of electroacoustic musicians.

We start with a Tutorial Article by Rajmil Fishman on the theory and use of the phase vocoder, which forms an apposite introduction to the thematic material in this issue. It provides an accessible description of this valuable tool, and is accompanied by practical examples of its use. We propose to include examples of the sound transformations realised through the examples on the CD which will be released with Vol. 2 No. 3 of *Organised Sound*.

Luke Windsor, in his article on frequency structure in electroacoustic music, considers the role of frequency-related structures in the technological and ideological context of the genre. He questions current musical research in relation to the challenges posed by electroacoustic music to contemporary thought on the role of frequency within music's abstract significance.

Musicians need tools to work with, and their development and exposition is essential to the wellbeing of contemporary electroacoustic music. It is therefore entirely appropriate that *Organised Sound* should provide a forum where users and developers of these tools (readers as well as authors!) can engage in dialogue about the way in which they should evolve. In this context, we welcome the article by David Howard and Andy Tyrrell on psychoacoustically informed spectrography and timbre. In this case the tool is analytic, operating within the frequency domain and providing quantitative data illustrating the psychoacoustic perception of timbre, with specific reference to the human peripheral hearing system.

Our sights are kept firmly focused on the musical repertoire by two analytical articles. The Student Article by Giselle Ferreira presents a perceptual

analysis of Jean-Claude Risset's *Sud*, whilst Marta Grabocz' paper 'Structural imagination in recent electroacoustic music' describes the outline of an ongoing study of different types of structural concepts, and their referential or non-referential content in electroacoustic, computer and mixed music.

We also present an article from Denis Smalley describing his latest thoughts on spectromorphology: the interaction between sound spectra and the way they are changed and shaped through time. Again, accessibility of musical thought is exemplified by this

article, in a form which will appeal to all aspects of our readership, wherever they fit in the musical-technical continuum. It is a fundamental objective of *Organised Sound* that given the current state of development of our evolving, cross-disciplinary field, we should take every opportunity to present ideas in a way which will inform enquiring minds from differing professional backgrounds within this cross-disciplinary continuum. We are grateful to the authors in this issue for their care and support in attaining this objective.