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# EDITORIAL

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This volume of *Organised Sound* considers issues that link technology and creativity. The call for submissions invited contributions that focus on the interactions which have occurred in this context during the evolution of electroacoustic music, examined from different perspectives. These include the ways in which composers have established working relationships with the technologies at their disposal in order to 'bring forth' conceptual ideas and implement them as a reality and also reflections on the technologies themselves, with a view to identifying key issues that have a material bearing on our understanding of the medium and possible lessons for the future.

It is now more than half a century since the pioneering developments in this context in both Europe and America which followed the end of the Second World War. By the end of the 1950s these had not only taken on a truly global dimension but also had embraced the possibilities of digital as well as analogue technologies. The resulting legacy has implications that need careful consideration as a matter of some urgency as the passage of time consigns earlier achievements to increasing obscurity. The opportunities to study the repertoire of works produced over this period of time are steadily reducing as those recordings which have not been re-mastered in more modern formats become unplayable or are simply lost. The sheer pace of technical development has also significantly shortened the working life of the associated equipment used to produce these works, a process underpinned by the transition to an era which relies almost exclusively upon the ever-changing characteristics of computer software and fast internet communications. The true extent of this journey into obsolescence becomes readily apparent whenever performances of works requiring the live use of these older technologies are attempted. Whereas some effective workarounds have been achieved by developing modern computer-based simulations, the increasing remoteness from the environments which originally shaped and influenced such works raises material considerations that also extend to our understanding of works which are purely studio-based.

There are a number of cogent reasons why the appropriate preservation of opportunities to engage with the past is important. The historical context is self-evident, in terms of the need both to secure the repertoire

for posterity and also to encourage reflection and evaluation. Such lines of enquiry, however, also extend to areas which are significant in terms of current discourse on the future of the medium, in terms of both aesthetic imperatives and also the ever-changing relationships between technology and creativity. It is all too easy to retreat into an environment which extends no further than the graphical user interface, the mouse and the keyboard. The ways in which composers and performers have previously engaged with technologies not only provide important clues to the associated creative processes, they also significantly enhance our understanding of the key characteristics of the working environment which shaped and ultimately constrained their objectives. Such knowledge is invaluable in terms of setting current developments in a wider context, thus creating opportunities to draw upon experiences past in shaping the future.

The opportunities to engage directly with those who shaped the evolution of the medium during the formative years also diminish year by year. The death of Stockhausen in December 2007 just prior to the deadline for submissions to this volume has provided a sharp reminder of this inevitability, and the inclusion of two articles which study specific aspects of his engagement with technologies available at different stages in his composing career has thus a relevance which was not foreseen at the time of writing.

Gaël Tissot's article on the first electroacoustic pieces by Karlheinz Stockhausen studies the links between technology and aesthetics in these early works, whereas the article by Clarke and Manning focuses on the influence of technology on the composition of *Octophonie*, with particular reference to the issues of spatialisation he addressed in its three-dimensional listening environment. The technical resources of the Westdeutscher Rundfunk (WDR) studio at Cologne used by Stockhausen feature also in an article by Paulo Chagas, which considers ways in which production and spatial environment shape the aesthetics of electroacoustic music, using one of his own works realised in this studio as an example. Chagas was involved in the design of the spatialisation system used in *Octophonie* and his observations here add further insight to Stockhausen's engagement with the associated technology by way of an introduction to his own experiences

subsequently developing a twelve-channel electroacoustic work in the same studio.

The issue of the inevitable demise of older technologies and the consequences thereof is considered by Bruce Pennycook. His article addresses the questions that have to be considered in performing interactive music compositions through an examination of the author's own works in terms of their compositional impetus and subsequent technical design. In revisiting the technologies he has employed since the mid-1980s the associated functional characteristics are contextualised in ways that highlight some of the forces that influence the preservation and long-term viability of interactive works and also non-interactive electroacoustic compositions, based upon personal experience. A further perspective on the impact of computer technologies on music composition over the last 25 years, with reference to specific musical problems that have been addressed as a result of new computational opportunities, is provided in an article by Eric Lyon, based on his own composing experiences, which are mapped across the three axes: hardware, software and musical aesthetics.

Continuing this theme, Daniel Iglesia considers the inter-relation of human and machine in the context of real-time performance systems. He discusses the aesthetic implications of such systems, the relationship between form and content, the problems of real-time control of multiple parameters and the trade-off between breadth and depth of control. Volker Straebel looks at the relationship between changing technologies and creativity in discussing four of Phill Niblock's drone-based works. The works span a period from 1973 to 2003, a time of rapid technological development, and Straebel concludes that for Niblock technology is a source of inspiration rather than a tool: the composer's musical technique is substantially independent of the technology used.

Algorithmic music generated by computer raises issues of technology and creativity in specific ways, and two authors consider this from different perspectives. Nick Collins looks at the problems raised when studying computer-generated works in which there is minimal human intervention at run-time. He considers this from an analytical and technical point of view and also in terms of the social and historical context. Two works by James McCartney are analysed to illustrate these issues. Fredrik Hedelin describes his own algorithmic program *Kimón* in discussing the relationship between generative processes and musical dramaturgy. In *Kimón* the composer creates abstractions of the musical form as a starting point for the generation process.

In the HIEMPA project described in Ian Whalley's paper the technological and the artistic work in tandem with environmental and cultural concerns. Recordings and analyses of an aquascape from South Waikato and of a variety of Pūtorino (a New Zealand Māori wind instrument) are used in constructing hybrid digital instruments. These instruments are then used as the basis for compositional work which relates back to the cultural and environmental context in which the sounds were recorded.

The articles in this edition embrace a wide range of technologies, musical styles and aesthetic stances. It is not surprising therefore that they reveal differing approaches to the creative use of technology. What emerges clearly from the discussions is the significance of this interaction and the importance of the development of a clear and sophisticated understanding of the topic as the foundation both for a deeper comprehension of past achievements and in developing the music and technology of the future.

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