

Analytical Methods Electroacoustic Music Simoni

Teaching Electronic Music: Cultural, Creative, and Analytical Perspectives offers innovative and practical techniques for teaching electronic music in a wide range of classroom settings. Across a dozen essays, an array of contributors—including practitioners in musicology, art history, ethnomusicology, music theory, performance, and composition—reflect on the challenges of teaching electronic music, highlighting pedagogical strategies while addressing questions such as: What can instructors do to expand and diversify musical knowledge? Can the study of electronic music foster critical reflection on technology? What are the implications of a digital culture that allows so many to be producers of music? How can instructors engage students in creative experimentation with sound? Electronic music presents unique possibilities and challenges to instructors of music history courses, calling for careful attention to creative curricula, historiographies, repertoires, and practices. Teaching Electronic Music features practical models of instruction as well as paths for further inquiry, identifying untapped methodological directions with broad interest and wide applicability. Analytical Methods of Electroacoustic Music Routledge

This collection presents intriguing explanations of extraordinary musical creations

from across the world, concentrating on how the music works as sound in process. It suggests analytical approaches that apply across cultures, proposes a new way of classifying music, and treats provocative questions about the juxtaposition of music from different cultures.

The first work to propose a comprehensive musicological framework to study sound-based music, a rapidly developing body of work that includes electroacoustic art music, turntable composition, and acoustic and digital sound installations. The art of sound organization, also known as electroacoustic music, uses sounds not available to traditional music making, including prerecorded, synthesized, and processed sounds. The body of work of such sound-based music (which includes electroacoustic art music, turntable composition, computer games, and acoustic and digital sound installations) has developed more rapidly than its musicology. *Understanding the Art of Sound Organization* proposes the first general foundational framework for the study of the art of sound organization, defining terms, discussing relevant forms of music, categorizing works, and setting sound-based music in interdisciplinary contexts. Leigh Landy's goal in this book is not only to create a theoretical framework but also to make the work more accessible—to suggest a way to understand sound-based music, to give a listener what he terms “something to hold on to,” for example, by connecting elements in

a work to everyday experience. Landy considers the difficulties of categorizing works and discusses such types of works as sonic art and electroacoustic music, pointing out where they overlap and how they are distinctive. He proposes a “sound-based music paradigm” that transcends such traditional categories as art and pop music. Landy defines patterns that suggest a general framework and places the studies of sound-based music into interdisciplinary contexts, from acoustics to semiotics, proposing a holistic research approach that considers the interconnectedness of a given work's history, theory, technological aspects, and social impact. The author's ElectroAcoustic Resource Site (EARS, www.ears.dmu.ac.uk), the architecture of which parallels this book's structure, offers updated bibliographic resource abstracts and related information. During the twentieth century, electronic technology enabled the explosive development of new tools for the production, performance, dissemination and conservation of music. The era of the mechanical reproduction of music has, rather ironically, opened up new perspectives, which have contributed to the revitalisation of the performer's role and the concept of music as performance. This book examines questions related to music that cannot be set in conventional notation, reporting and reflecting on current research and creative practice primarily in live electronic music. It studies compositions for which the musical

text is problematic, that is, non-existent, incomplete, insufficiently precise or transmitted in a nontraditional format. Thus, at the core of this project is an absence. The objects of study lack a reliably precise graphical representation of the work as the composer or the composer/performer conceived or imagined it. How do we compose, perform and study music that cannot be set in conventional notation? The authors of this book examine this problem from the complementary perspectives of the composer, the performer, the musical assistant, the audio engineer, the computer scientist and the musicologist.

Jonathan Harvey (b. 1939) is one of Britain's leading composers: his music is frequently performed throughout Europe, the United States (where he has lived and worked) and Japan. He is particularly renowned for his electro-acoustic music, an aspect on which most previous writing on his work has focused. The present volume is the first detailed study of music from Harvey's considerable body of work for conventional forces. It focuses on two pieces that span one of the most fertile periods in Harvey's output: *Song Offerings* (1985; awarded the prestigious Britten Award), and *White as Jasmine* (1999). The book explores the links between the two works - both set texts by Hindu writers, employ a solo soprano, and adumbrate a spiritual journey - as well as showing how Harvey's musical language has evolved in the period between them. It examines Harvey's

techniques of writing for the voice, for small ensemble (Song Offerings), and for large orchestra, subtly and characteristically enhanced with electronic sound (White as Jasmine). It shows how Harvey's music is informed by his profound understanding of Eastern religion, as well as offering a clear and accessible account of his distinctive musical language. Both works use musical processes to dramatic and clearly audible effect, as the book demonstrates with close reference to the accompanying CD recordings. The book draws on interviews with the composer, and benefits from the author's exclusive access to sketches of the two works. It contextualizes the works, showing how they are the product of a diverse series of musical influences and an engagement with ideas from both Eastern and Western religions. It also explores how Harvey has continued to develop the musical and spiritual preoccupations revealed in these pieces in his recent work, up to and including his third opera, Wagner Dream (2007). The Bloomsbury Handbook of Sound Art explores and delineates what Sound Art is in the 21st century. Sound artworks today embody the contemporary and transcultural trends towards the post-apocalyptic, a wide sensorial spectrum of sonic imaginaries as well as the decolonization and deinstitutionalization around the making of sound. Within the areas of musicology, art history, and, later, sound studies, Sound Art has evolved at least since the 1980s into a turbulent

field of academic critique and aesthetic analysis. Summoning artists, researchers, curators, and critics, this volume takes note of and reflects the most recent shifts and drifts in Sound Art--rooted in sonic histories and implying future trajectories.

This book is about how music "in a key" is composed. Further, it is about how such music was composed when it was no longer compulsory to do so, starting a few years before the First World War. In an eclectic journey through the history of compositional technique, Daniel Harrison contends that the tonal system did not simply die out with the dawn of twentieth century, but continued to supplement newer techniques as a compelling means of musical organization, even into current times. Well-known art music composers such as Bartok, Hindemith, Prokofiev, and Messiaen are represented alongside composers whose work moves outside the standard boundaries of art music: Leonard Bernstein, Maurice Duruflé, Frank Martin, Xiaoyong Chen. Along the way, the book attends to military bugle calls, a trailer before a movie feature, a recomposition of a famous piece by Arnold Schoenberg, and the music of Neil Diamond, David Shire, and Brian Wilson. A celebration of the awesome variety of musical expressions encompassed in what is called tonal music, *Pieces of Tradition* is a book for composers seeking ideas and effects, music theorists interested in its

innovations, and all those who practice the analysis of composition in all its modern and traditional variations.

Algorithmic Composition offers new ways of thinking about the organization of sound that we call music

From Music to Sound is an examination of the six musical histories whose convergence produces the emergence of sound, offering a plural, original history of new music and showing how music had begun a change of paradigm, moving from a culture centred on the note to a culture of sound. Each chapter follows a chronological progression and is illustrated with numerous musical examples.

The chapters are composed of six parallel histories: timbre, which became a central category for musical composition; noise and the exploration of its musical potential; listening, the awareness of which opens to the generality of sound; deeper and deeper immersion in sound; the substitution of composing the sound for composing with sounds; and space, which is progressively viewed as composable. The book proposes a global overview, one of the first of its kind, since its ambition is to systematically delimit the emergence of sound. Both well-known and lesser-known works and composers are analysed in detail; from Debussy to contemporary music in the early twenty-first century; from rock to electronica; from the sound objects of the earliest musique concrète to current

electroacoustic music; from the Poème électronique of Le Corbusier-Varèse-Xenakis to the most recent inter-arts attempts. Covering theory, analysis and aesthetics, *From Music to Sound* will be of great interest to scholars, professionals and students of Music, Musicology, Sound Studies and Sonic Arts. Supporting musical examples can be accessed via the online Routledge Music Research Portal.

The Routledge Companion to Sounding Art presents an overview of the issues, methods, and approaches crucial for the study of sound in artistic practice. Thirty-six essays cover a variety of interdisciplinary approaches to studying sounding art from the fields of musicology, cultural studies, sound design, auditory culture, art history, and philosophy. The companion website hosts sound examples and links to further resources. The collection is organized around six main themes: Sounding Art: The notion of sounding art, its relation to sound studies, and its evolution and possibilities. Acoustic Knowledge and Communication: How we approach, study, and analyze sound and the challenges of writing about sound. Listening and Memory: Listening from different perspectives, from the psychology of listening to embodied and technologically mediated listening. Acoustic Spaces, Identities and Communities: How humans arrange their sonic environments, how this relates to sonic identity, how music contributes to our environment, and the

ethical and political implications of sound. *Sonic Histories: How studying sounding art can contribute methodologically and epistemologically to historiography.* *Sound Technologies and Media: The impact of sonic technologies on contemporary culture, electroacoustic innovation, and how the way we make and access music has changed.* With contributions from leading scholars and cutting-edge researchers, *The Routledge Companion to Sounding Art* is an essential resource for anyone studying the intersection of sound and art. *Making Music with Sounds* offers a creative introduction to the art of making sound-based music. It introduces the elements of making compositions with sounds and facilitates creativity in school age children, with the activities primarily for 11-14 year old students. It can also be used by people of all ages becoming acquainted with this music for the first time. Sound-based music is defined as the art form in which the sound, rather than the musical note, is the basic unit and is closely related to electronic music and the sonic arts. The art of sound organisation can be found in a number of forms of music--in film, television, theatre, dance, and new media. Despite this, there are few materials available currently for young people to discover how to make sound-based music. This book offers a programme of development starting from aural awareness, through the discovery and organisation of potential sounds, to the means of generating

and manipulating sounds to create sequences and entire works. The book's holistic pedagogical approach to composition also involves aspects related to musical understanding and appreciation, reinforced by the author's online pedagogical ElectroAcoustic Resource Site (EARS II).

El presente libro explora el sentido de posibilidad abierto por los desestabilizadores conflictos militares, los levantamientos sociales y los avances tecnológicos de la época. El autor muestra cómo la multiplicidad de estilos musicales puso en cuestión ideas asumidas tradicionalmente en torno a la práctica compositiva, los límites entre música y ruido, o la relación entre compositor, intérprete y espectador. Asimismo pone de manifiesto cómo los compositores y sus obras han desempeñado un papel importante a la hora de definir las ideas de nación, raza y género, así como de configurar el mundo moderno, para bien y para mal. Una nueva visión de la música de nuestra época, que pone de manifiesto el importantísimo papel desempeñado en su desarrollo por los conflictos políticos, los avances tecnológicos y por la propia sociedad en cuyo seno han surgido las obras.

4e de couv.: Une idée simple est à l'origine de cet ouvrage: loin de se réduire à un discours savant sur les œuvres, l'analyse est aussi une pratique musicale impliquant, comme la composition ou l'interprétation, des actes de lecture,

d'écoute et d'écriture. Elle engendre aussi des styles et des traditions nationales, elle suscite ou reflète des débats sur la nature de la musique. Un groupe de musicologues (analystes et historiens) et de chercheurs venus d'autres disciplines s'est interrogé sur l'origine et la signification des gestes quotidiens du travail analytique: chiffage, transcription, réduction au piano, segmentation, écoute intérieure... mais aussi rédaction de textes, de graphes, de tableaux, qui donneront forme au propos musical de l'analyste. Comment ces différents gestes se sont-ils rejoints pour donner vie à une discipline que l'on appelle désormais "analyse musicale"? Ce livre propose plusieurs façons de répondre. La première consiste à explorer des archives inédites qui nous éclairent sur les diverses formes, parfois méconnues, qu'a pu prendre l'analyse depuis son émergence à la fin du XIXe siècle - de la littérature wagnérienne aux transcriptions d'œuvres électroacoustiques en passant par les pochettes de disques. La deuxième vise à comprendre les configurations nationales, institutionnelles et temporelles dans lesquelles se déploie l'activité analytique: différends franco-allemands chez Riemann et d'Indy, réception de Schoenberg aux États-Unis pour la set theory, ou encore rôle des structures d'enseignement dans le développement de l'analyse en France. Une troisième piste consiste à relire d'un œil neuf des analyses musicales de référence comme celles de Hugo Riemann, René

Leibowitz, Olivier Messiaen, Herbert Eimert, Pierre Boulez, Gilbert Rouget, Edward T. Cone, Nicolas Ruwet, Allen Forte, Jean-Jacques Nattiez... Enfin, l'analyse se crée et se transmet avant tout dans des situations pédagogiques: certains chapitres de ce livre ont opté pour L'enquête de terrain où la pratique analytique peut s'observer in situ. Au fil des textes s'esquissent ainsi la cartographie et la généalogie d'un savoir-faire aujourd'hui bien présent dans les conservatoires et les universités, mais dont l'histoire est au fond méconnue. A travers cette enquête sans équivalent en langue française, il s'agit donc moins de parcourir l'évolution des grandes théories musicales que de renouveler notre regard sur l'analyse musicale en interrogeant ce qui a fait d'elle, au XXe siècle, une discipline musicologique d'envergure mondiale.

Inside Computer Music is an investigation of how new technological developments have influenced the creative possibilities of composers of computer music in the last 50 years. This book combines detailed research into the development of computer music techniques with thorough studies of nine case studies analysing key works in the musical and technical development of computer music. The text is linked to demonstration videos of the techniques used and software which offers readers the opportunity to try out emulations of the software used by the composers for themselves and view video interviews

with the composers and others involved in the production of the musical works. The software also presents musical analyses of each of the nine case studies using software and video alongside text to enable readers to engage with the musical structure aurally and interactively.

Music Theory has a lot of ground to cover. Especially in introductory classes a whole range of fundamental concepts are introduced at fast pace that can never be explored in depth or detail, as other new topics become more pressing. The short time we spend with them in the classroom belies the complexity (and, in many cases, the contradictions) underlying these concepts. This book takes the time to tarry over these complexities, probe the philosophical assumptions on which these concepts rest, and shine a light on all their iridescent facets. This book presents music-theoretical concepts as a register of key terms progressing outwards from smallest detail to discussions of the music-theoretical project on the largest scale. The approaches individual authors take range from philosophical, historical, or analytical to systematic, cognitive, and critical-theoretical-covering the whole diverse spectrum of contemporary music theory. In some cases authors explore concepts that have not yet been widely added to the theorist's toolkit but deserve to be included; in other cases concepts are expanded beyond their core repertory of application. This collection does not shy

away from controversy. Taken in their entirety, the essays underline that music theory is on the move, exploring new questions, new repertoires, and new approaches. This collection is an invitation to take stock of music theory in the early twenty-first century, to look back and to encourage discussion about its future directions. Its chapters open up a panoramic view of the contemporary music-theoretical landscape with its expanding repertoires and changing guiding questions, and offers suggestions as to where music theory is headed in years to come.

This accessible Introduction explores both mainstream and experimental manifestations of electronic music. From early recording equipment to the most recent multimedia performances, the history of electronic music is full of interesting characters, fascinating and unusual music, and radical technology. Covering many different eras, genres and media, analyses of works appear alongside critical discussion of central ideas and themes, making this an essential guide for anyone approaching the subject for the first time. Chapters include key topics from synth pop to sound art, from electronic dance music to electrical instruments, and from the expression of pure sound to audiovisuals. Highly illustrated and with a wide selection of examples, the book provides many suggestions for further reading and listening to encourage students to begin their

own experiments in this exciting field.

Musicians are always quick to adopt and explore new technologies. The fast-paced changes wrought by electrification, from the microphone via the analogue synthesiser to the laptop computer, have led to a wide range of new musical styles and techniques. Electronic music has grown to a broad field of investigation, taking in historical movements such as musique concrète and elektronische Musik, and contemporary trends such as electronic dance music and electronica. The first edition of this book won the 2009 Nicolas Bessaraboff Prize as it brought together researchers at the forefront of the sonic explorations empowered by electronic technology to provide accessible and insightful overviews of core topics and uncover some hitherto less publicised corners of worldwide movements. This updated and expanded second edition includes four entirely new chapters, as well as new original statements from globally renowned artists of the electronic music scene, and celebrates a diverse array of technologies, practices and music.

Today's computers provide music theorists with unprecedented opportunities to analyze music more quickly and accurately than ever before. Where analysis once required several weeks or even months to complete, often replete with human errors, computers now provide the means to accomplish these same

analyses in a fraction of the time and with far more accuracy. However, while such computer music analyses represent significant improvements in the field, computational analyses using traditional approaches by themselves do not constitute the true innovations in music theory that computers offer. In *Hidden Structure: Music Analysis Using Computers* David Cope introduces a series of analytical processes that, by virtue of their concept and design, can be better, and in some cases, only accomplished by computer programs, thereby presenting unique opportunities for music theorists to understand more thoroughly the various kinds of music they study. Following the introductory chapter that covers several important premises, *Hidden Structure* focuses on several unique approaches to music analysis offered by computer programs. While these unique approaches do not represent an all-encompassing and integrated global theory of music analysis, they do represent significantly more than a compilation of loosely related computer program descriptions. For example, Chapter 5 on function in post-tonal music, firmly depends on the scalar foundations presented in chapter 4. Likewise, chapter 7 presents a multi-tiered approach to musical analysis that builds on the material found in all of the preceding chapters. In short, *Hidden Structure* uniquely offers an integrated view of computer music analysis for today's musicians.

"This book enumerates the difficulties in implementing technology within the educational curriculum in the context of institutional policy and procedures"--Provided by publisher.

This handbook provides a cross-section of the most field-defining topics and debates in the field of computer music today. From music cognition to pedagogy, it situates computer music in the broad context of its creation and performance across the full range of issues that crop up in discourse in the field.

This volume brings together practitioners and theorists of music and sonic art. Contributions explore a wide range of historical, artistic, pedagogical and critical issues from multiple perspectives, emphasizing the continuities and links along a broad spectrum of hearing and listening practices and art-making that use sound. This anthology of over 40 scores and excerpts represents a wide range of music from across the twentieth century and into the twenty-first century, from pieces by Debussy, Stravinsky, and Bartok to works by Arvo Pärt, Thomas Adès, and Kaija Saariaho. Showcasing the vast range of compositional styles encompassed in the post-tonal era, this volume offers a convenient compendium including hard-to-find scores. Designed for use with *Understanding Post-Tonal Music* by Miguel A. Roig-Francolí, which includes extensive analyses of the scores provided here, this anthology can also stand alone for study and analysis in other courses on the

history and analysis of post-tonal music.

Alvin Luciers populärste Arbeit "I Am Sitting in a Room" aus dem Jahr 1969 gilt als eine der bedeutendsten experimentellen Kompositionen des 20. Jahrhunderts überhaupt. Der Komponist Alvin Lucier (*1931) ist ein wichtiger Vertreter der amerikanischen Musik der zweiten Hälfte des 20. Jahrhunderts. Ob während der Phase der Live-Elektronik in den 1960er und 1970er Jahren mittels Verbalpartituren oder seit den frühen 1980er Jahren anhand traditionell notierter Instrumentalstücke: Lucier fokussiert entsprechend konsequent akustische und akustisch generierte Phänomene wie minutiös geplante Schwebungen oder Raumresonanzen. Verstanden als ästhetische Reflexionen verweisen diese ebenso minimalistischen wie abwechslungsreichen Werke neben der Phänomenalität des Klangs stets auch auf die Wahrnehmung der Wahrnehmung selbst. Das gewöhnlich Unhörbare wird hörbar, aber auch Hörbares wird auf ungewöhnliche Weise sichtbar.

This title deals with both the practical use of technology in music and the key principles underpinning the discipline. It targets both musicians exploring computers, and technologists engaging with music, and does so in the confidence that both groups can learn tremendously from the cross-disciplinary encounter.

Electronic music evokes new sensations, feelings, and thoughts in both composers and listeners. Opening the door to an unlimited universe of sound, it engages spatialization as an integral aspect of composition and focuses on sound transformation as a core structural strategy. In this new domain, pitch occurs as a flowing and ephemeral substance that can be bent, modulated, or dissolved into noise. Similarly, time occurs not merely as a fixed duration subdivided by ratios, but as a plastic medium that can be generated, modulated, reversed, warped, scrambled, and granulated. Envelope and waveform undulations on all time scales interweave to generate form. The power of algorithmic methods amplify the capabilities of music technology. Taken together, these constitute game-changing possibilities. This convergence of technical and aesthetic trends prompts the need for a new text focused on the opportunities of a sound oriented, multiscale approach to composition of electronic music. Sound oriented means a practice that takes place in the presence of sound. Multiscale means an approach that takes into account the perceptual and physical reality of multiple, interacting time scales-each of which can be composed. After more than a century of research and development, now is an appropriate moment to step back and reevaluate all that has changed under the ground of artistic practice. *Composing Electronic Music* outlines a new theory of composition based on the

toolkit of electronic music techniques. The theory consists of a framework of concepts and a vocabulary of terms describing musical materials, their transformation, and their organization. Central to this discourse is the notion of narrative structure in composition-how sounds are born, interact, transform, and die. It presents a guidebook: a tour of facts, history, commentary, opinions, and pointers to interesting ideas and new possibilities to consider and explore. This book explores the relationship between three African American women's dance-art-music sensibilities within the context of a Pan African aesthetic. Its purpose is three-fold: to show commonalities between Bessie Smith, Billie Holiday and Nina Simone's lives and original compositions; to codify, examine and evaluate their selected song performances in accordance with the Pan African aesthetic "Nzuri theory/model;" and to illuminate the vast sources of transformational values that aesthetic analysis of African American song performance can foster. Following concordant procedures and principles of Afrocentricity, the study focuses on Smith, Holiday and Simone's performances as part of a whole African artistic and cultural value system. The goal of the Afrocentric methodological structure is to locate relevant African dynamics in songs and to promote knowledge for cultural transformation and continuity. Its use in this study provides meta-criteria for analyzing African American music,

which the author has used to uniquely argue connections between African cultural memory and African-derived cultural expression.

Featuring chapters by emerging and established scholars as well as by leading practitioners in the field, this Handbook both describes the state of algorithmic composition and also set the agenda for critical research on and analysis of algorithmic music.

Containing extensive artwork serving as demonstration, as well as a DVD with sound and video clips, this collection of essays on electroacoustic music explores the creative possibilities to be found in various forms of musical analysis. Taking pitch, duration, intensity, and timbre as the four basic elements of music, the authors discuss electroacoustic works and examine: * the applications of neumes * contemporary staff notation * sound orchestra and score files * time-domain representations * spectrograms. Taking into consideration both the positive aspects (preservation of the abstract) and negative aspects (creative limitation) of these analytical methods, the authors have created a useful resource for students of electroacoustic music.

A collection that goes beyond the canon to analyze influential yet under-examined works of electronic music. This collection of writings on electronic music goes outside the canon to analyze influential works by under-recognized

musicians. The contributors, many of whom are composers and performers themselves, offer their unsung musical heroes the sort of in-depth examinations usually reserved for more well-known composers and works. They analyze music from around the world and across genders, race, nationality, and age, discussing works that range from soundscapes of rushing water and resonating pipes to compositions by algorithm. Subjects include the collaboration of performer and composer, as seen in the work of Anne La Berge, Luciano Berio and Cathy Berberian, and others; the choice by Asian composers Zhang Xiaofu and Unsuik Chin to embrace (or not) Eastern themes and styles; and how technologies used by composers created the sound of the works, as exemplified by Bülent Arel's use of voltage-control components as compositional tools and Charles Dodge's resynthesizing of the human voice. Contributors Marc Battier, Valentina Bertolani, Kerry L. Hagan, Yvette Janine Jackson, Leigh Landy, Pamela Madsen, Miller Puckette, David Rosenboom, Jøran Rudi, Margaret Anne Schedel, Juliana Snapper, Laura Zattra Composers Bülent Arel, Cathy Berberian and Luciano Berio, Anne La Berge, Unsuik Chin, Charles Dodge, Jacqueline George, Salvatore Martirano, Teresa Rampazzi, Hildegard Westerkamp, Knut Wigger, Gayle Young, Zhang Xiaofu

Singing the Body Electric explores the relationship between the human voice and

technology, offering startling insights into the ways in which technological mediation affects our understanding of the voice, and more generally, the human body. From the phonograph to magnetic tape and now to digital sampling, Miriama Young visits particular musical and literary works that define a century-and-a-half of recorded sound. She discusses the way in which the human voice is captured, transformed or synthesised through technology. This includes the sampled voice, the mechanical voice, the technologically modified voice, the pliable voice of the digital era, and the phenomenon by which humans mimic the sounding traits of the machine. The book draws from key electro-vocal works spanning a range of genres - from Luciano Berio's *Thema: Omaggio a Joyce* to Radiohead, from Alvin Lucier's *I Am Sitting in a Room*, to Björk, and from Pierre Henry's *Variations on a Door and a Sigh* to Christian Marclay's *Maria Callas*. In essence, this book transcends time and musical style to reflect on the way in which the machine transforms our experience of the voice. The chapters are interpolated by conversations with five composers who work creatively with the voice and technology: Trevor Wishart, Katharine Norman, Paul Lansky, Eduardo Miranda and Bora Yoon. This book is an interdisciplinary enterprise that combines music aesthetics and musical analysis with literature and philosophy. A state-of-the-art overview of the analysis of electroacoustic music, which

includes discussions of a wide range of works.

The Routledge Companion to Music, Technology, and Education is a comprehensive resource that draws together burgeoning research on the use of technology in music education around the world. Rather than following a procedural how-to approach, this companion considers technology, musicianship, and pedagogy from a philosophical, theoretical, and empirically-driven perspective, offering an essential overview of current scholarship while providing support for future research. The 37 chapters in this volume consider the major aspects of the use of technology in music education: Part I. Contexts. Examines the historical and philosophical contexts of technology in music. This section addresses themes such as special education, cognition, experimentation, audience engagement, gender, and information and communication technologies. Part II. Real Worlds. Discusses real world scenarios that relate to music, technology, and education. Topics such as computers, composition, performance, and the curriculum are covered here. Part III. Virtual Worlds. Explores the virtual world of learning through our understanding of media, video games, and online collaboration. Part IV. Developing and Supporting Musicianship. Highlights the framework for providing support and development for teachers, using technology to understand and develop musical understanding.

The Routledge Companion to Music, Technology, and Education will appeal to undergraduate and post-graduate students, music educators, teacher training specialists, and music education researchers. It serves as an ideal introduction to the issues surrounding technology in music education.

This book is the most definitive attempt to date to discuss the achievements of women as composers of experimental and avant-garde music from the 1930s to the present day. Using a wealth of primary material, it also explores currently relevant issues in gender and technology. Drawing out the relationships between composers and their working environments, and between teachers and students, Elizabeth Hinkle-Turner discusses the contribution of women composers to electroacoustic music. The book includes a bibliography and discography covering the work of ninety composers.

Written by an active composer, performer and educator, *Sonic Art: An Introduction to Electroacoustic Music Composition* provides a clear and informative introduction to the compositional techniques behind electroacoustic music. It brings together theory, aesthetics, context and practical applications to allow students to start thinking about sound creatively, and gives them the tools to compose meaningful sonic art works. In addition to explaining the techniques and philosophies of sonic art, the book examines over forty composers and their

works, introducing the history and context of notable pieces, and includes chapters on how to present compositions professionally, in performance and online. The book is supported by an online software toolkit which enables readers to start creating their own compositions. Encouraging a 'hands on' approach to working with sound, *Sonic Art* is the perfect introduction for anyone interested in electroacoustic music and crafting art from sounds.

Understanding Post-Tonal Music is a student-centered textbook that explores the compositional and musical processes of twentieth-century post-tonal music. Intended for undergraduate or general graduate courses on the theory and analysis of twentieth-century music, this book will increase the accessibility of post-tonal music by providing students with tools for understanding pitch organization, rhythm and meter, form, texture, and aesthetics. By presenting the music first and then deriving the theory, *Understanding Post-Tonal Music* leads students to greater understanding and appreciation of this challenging and important repertoire. The updated second edition includes new "Explorations" features that guide students to engage with pieces through listening and a process of exploration, discovery, and discussion; a new chapter covering electronic, computer, and spectral musics; and additional coverage of music from the twenty-first century and recent trends. The text has been revised throughout

to enhance clarity, both by streamlining the prose and by providing a visual format more accessible to the student.

In this new edition of the classic text on the history and evolution of electronic music, Peter Manning extends the definitive account of the medium from its birth to include key developments from the dawn of the 21st century to the present day. After explaining the antecedents of electronic music from the turn of the 20th century to the Second World War, Manning discusses the emergence of the early 'classical' studios of the 1950s, and the subsequent evolution of more advanced analogue technologies during the 1960s and '70s, leading in turn to the birth and development of the MIDI synthesizer. Attention then turns to the characteristics of the digital revolution, from the pioneering work of Max Mathews at Bell Telephone Laboratories in the 1950s to the wealth of resources available today, facilitated by the development of the personal computer and allied digital technologies. The scope and extent of the technical and creative developments that have taken place since the late 1990s are considered in an extended series of new and updated chapters. These include topics such as the development of the digital audio workstation, laptop music, the Internet, and the emergence of new performance interfaces. Manning offers a critical perspective of the medium in terms of the philosophical and technical features that have shaped its growth.

Emphasizing the functional characteristics of emerging technologies and their influence on the creative development of the medium, Manning covers key developments in both commercial and the non-commercial sectors to provide readers with the most comprehensive resource available on the evolution of this ever-expanding area of creativity.

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