

The Computer Music Tutorial Curtis Roads

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 Numbers & Notes
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 An Introduction to Music Technology
 Sound and Light
 Composers and the Computer

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Hollywood Harmony MIT Press
 Proven techniques for songwriting success This friendly, hands-on guide tackles the new face of the recording industry, guiding you through the shift from traditional sales to downloads and mobile music, as well as how you can harness social media networks to get your music "out there." You get basic songwriting concepts, insider tips and advice, and inspiration for writing — and selling — meaningful, timeless songs. *Songwriting 101* — get a grip on everything you need to know to write a song, from learning to listen to your "inner voice" to creating a "mood" and everything in between Jaunt around the genres — discover the variety of musical genres and find your fit, whether it's rock, pop, R&B, gospel, country, or more Let the lyrics out — master the art of writing lyrics, from finding your own voice to penning the actual words to using hooks, verses, choruses, and bridges Make beautiful music — find your rhythm, make melodies, and use chords to put the finishing touches on your song Work the Web — harness online marketing and social networks like Facebook, Twitter, and others to get your music heard by a whole new audience Open the book and find: What you need to know before you write a single note Tips on finding inspiration Ways to use poetic devices in lyrics Computer and Web-based shortcuts and technologies to streamline songwriting A look at famous songwriting collaborators Writing for stage, screen, and television How to make a demo to get your song heard Advice on how to make money from your music Learn to: Develop your songwriting skills with tips and techniques from the pros Use social networking sites to get your music out to the public Break into the industry with helpful, how-to instructions
Inside Computer Music Oxford University Press
 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.

On the Threshold of Beauty Pearson

Expanded, updated, and fully revised—the definitive introduction to electronic music is ready for new generations of students. Essential and state-of-the-art, *The Computer Music Tutorial*, second edition is a singular text that introduces computer and electronic music, explains its motivations, and puts topics into context. Curtis Roads's step-by-step presentation orients musicians, engineers, scientists, and anyone else new to computer and electronic music. The new edition continues to be the definitive tutorial on all aspects of computer music, including digital audio, signal processing, musical input devices, performance software, editing systems, algorithmic composition, MIDI, and psychoacoustics, but the second edition also reflects the enormous growth of the field since the book's original publication in 1996. New chapters cover up-to-date topics like virtual analog, pulsar synthesis, concatenative synthesis, spectrum analysis by atomic decomposition, Open Sound Control, spectrum editors, and instrument and patch editors. Exhaustively referenced and cross-referenced, the second edition adds hundreds of new figures and references to the original charts, diagrams, screen images, and photographs in order to explain basic concepts and terms. Features New chapters: virtual analog, pulsar synthesis, concatenative synthesis, spectrum analysis by atomic decomposition, Open Sound Control, spectrum editors, instrument and patch editors, and an appendix on machine learning Two thousand references support the book's descriptions and point readers to further study Mathematical notation and program code examples used only when necessary Twenty-five years of classroom, seminar, and workshop use inform the pace and level of the material
Songwriting For Dummies Springer
 Film music often tells us how to feel, but it also guides us how to hear. Filmgoing is an intensely musical experience, one in which the soundtrack structures our interpretations and steers our emotions. *Hollywood Harmony* explores the inner workings of film music, bringing together tools from music theory, musicology, and music psychology in this first ever book-length analytical study of this culturally central repertoire. Harmony, and especially chromaticism, is emblematic of the "film music sound," and it is often used to evoke that most cinematic of feelings-wonder. To help parse this familiar but complex musical style, *Hollywood Harmony* offers a first-of-its kind introduction to neo-Riemannian theory, a recently developed and versatile method of understanding music as a dynamic and transformational process, rather than a series of inert notes on a page. This application of neo-Riemannian theory to film music is perfect way in for curious newcomers, while also constituting significant scholarly

contribution to the larger discipline of music theory. Author Frank Lehman draws from his extensive knowledge of cinematic history with case-studies that range from classics of Golden Age Hollywood to massive contemporary franchises to obscure cult-films. Special emphasis is placed on scores for major blockbusters such as *Lord of the Rings*, *Star Wars*, and *Inception*. With over a hundred meticulously transcribed music examples and more than two hundred individual movies discussed, *Hollywood Harmony* will fascinate any fan of film and music.

Composing Electronic Music University of Michigan Press

This text aims to be accessible to students relatively inexperienced with electronic musical technology, while also sufficiently detailed for technical and musical achievement. Furthermore, it stresses the notion that, despite all the attention given to technique, the principal goal is musical expression.

Designing Sound Routledge

This survey chronicles the major advances in computer music that have changed the way music is composed, performed, and recorded. It contains many of the classic, seminal articles in the field (most of which are now out of print) in revised and updated versions. Computer music pioneers, digital audio specialists, and highly knowledgeable practitioners have contributed to the book. Thirty-six articles written in the 1970s and 1980s cover sound synthesis techniques, synthesizer hardware and engineering, software systems for music, and perception and digital signal processing. The editors have provided extensive summaries for each section. Curtis Roads is editor of *Computer Music Journal*. John Strawn is a Research Associate at the Center for Computer Research in Music and Acoustics (CCRMA) at Stanford University.

Sound Synthesis and Sampling Microsoft Press

Score

Step by Step Mit Press

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.

The Computer Music Tutorial, second edition MIT Press
 How a team of musicians, engineers, computer scientists, and psychologists developed computer music as an academic field and ushered in the era of digital music. In the 1960s, a team of Stanford musicians, engineers, computer scientists, and psychologists used computing in an entirely novel way: to produce and manipulate sound and create the sonic basis of new musical compositions. This group of interdisciplinary researchers at the nascent Center for Computer Research in Music and Acoustics (CCRMA, pronounced "karma") helped to develop computer music as an academic field, invent the technologies

that underlie it, and usher in the age of digital music. In *The Sound of Innovation*, Andrew Nelson chronicles the history of CCRMA, tracing its origins in Stanford's Artificial Intelligence Laboratory through its present-day influence on Silicon Valley and digital music groups worldwide. Nelson emphasizes CCRMA's interdisciplinarity, which stimulates creativity at the intersections of fields; its commitment to open sharing and users; and its pioneering commercial engagement. He shows that Stanford's outsized influence on the emergence of digital music came from the intertwining of these three modes, which brought together diverse supporters with different aims around a field of shared interest. Nelson thus challenges long-standing assumptions about the divisions between art and science, between the humanities and technology, and between academic research and commercial applications, showing how the story of a small group of musicians reveals substantial insights about innovation. Nelson draws on extensive archival research and dozens of interviews with digital music pioneers; the book's website provides access to original historic documents and other material.

Microsound Oxford University Press, USA

A practitioner's guide to the basic principles of creating sound effects using easily accessed free software. *Designing Sound* teaches students and professional sound designers to understand and create sound effects starting from nothing. Its thesis is that any sound can be generated from first principles, guided by analysis and synthesis. The text takes a practitioner's perspective, exploring the basic principles of making ordinary, everyday sounds using an easily accessed free software. Readers use the Pure Data (Pd) language to construct sound objects, which are more flexible and useful than recordings. Sound is considered as a process, rather than as data—an approach sometimes known as “procedural audio.” Procedural sound is a living sound effect that can run as computer code and be changed in real time according to unpredictable events. Applications include video games, film, animation, and media in which sound is part of an interactive process. The book takes a practical, systematic approach to the subject, teaching by example and providing background information that offers a firm theoretical context for its pragmatic stance. [Many of the examples follow a pattern, beginning with a discussion of the nature and physics of a sound, proceeding through the development of models and the implementation of examples, to the final step of producing a Pure Data program for the desired sound. Different synthesis methods are discussed, analyzed, and refined throughout.] After mastering the techniques presented in *Designing Sound*, students will be able to build their own sound objects for use in interactive applications and other projects

Ambisonics Oxford University Press

Compiled by an international array of musical and technical specialists, this book deals with some of the most important topics in modern musical signal processing. Beginning with basic concepts, and leading to advanced applications, it covers such essential areas as sound synthesis (including detailed studies of physical modelling and granular synthesis), control signal synthesis, sound transformation (including convolution), analysis/resynthesis (phase vocoder, wavelets, analysis by chaotic functions), object-oriented and artificial intelligence representations, musical interfaces and the integration of signal processing techniques in concert performance.

The Oxford Handbook of Computer Music MIT Press

Expanded, updated, and fully revised—the definitive introduction to electronic music is ready for new generations of students. Essential and state-of-the-art, *The Computer Music Tutorial*, second edition is a singular text that introduces computer and electronic music, explains its motivations, and puts topics into context. Curtis Roads's step-by-step presentation orients musicians, engineers, scientists, and anyone else new to computer and electronic music. The new edition continues to be the definitive tutorial on all aspects of computer music, including digital audio, signal processing, musical input devices, performance software, editing systems, algorithmic composition, MIDI, and psychoacoustics, but the second edition also reflects the enormous growth of the field since the book's original publication in 1996. New chapters cover up-to-date topics like virtual analog, pulsar synthesis, concatenative synthesis, spectrum analysis by atomic decomposition, Open Sound Control, spectrum editors, and instrument and patch editors. Exhaustively referenced and cross-referenced, the second edition adds hundreds of new figures and references to the original charts, diagrams, screen images, and photographs in order to explain

basic concepts and terms. Features New chapters: virtual analog, pulsar synthesis, concatenative synthesis, spectrum analysis by atomic decomposition, Open Sound Control, spectrum editors, instrument and patch editors, and an appendix on machine learning Two thousand references support the book's descriptions and point readers to further study Mathematical notation and program code examples used only when necessary Twenty-five years of classroom, seminar, and workshop use inform the pace and level of the material

A History of Mechanical Inventions OUP USA

The essential reference to SuperCollider, a powerful, flexible, open-source, cross-platform audio programming language. SuperCollider is one of the most important domain-specific audio programming languages, with potential applications that include real-time interaction, installations, electroacoustic pieces, generative music, and audiovisuals. The *SuperCollider Book* is the essential reference to this powerful and flexible language, offering students and professionals a collection of tutorials, essays, and projects. With contributions from top academics, artists, and technologists that cover topics at levels from the introductory to the specialized, it will be a valuable sourcebook both for beginners and for advanced users. SuperCollider, first developed by James McCartney, is an accessible blend of Smalltalk, C, and further ideas from a number of programming languages. Free, open-source, cross-platform, and with a diverse and supportive developer community, it is often the first programming language sound artists and computer musicians learn. The *SuperCollider Book* is the long-awaited guide to the design, syntax, and use of the SuperCollider language. The first chapters offer an introduction to the basics, including a friendly tutorial for absolute beginners, providing the reader with skills that can serve as a foundation for further learning. Later chapters cover more advanced topics and particular topics in computer music, including programming, sonification, spatialization, microsound, GUIs, machine listening, alternative tunings, and non-real-time synthesis; practical applications and philosophical insights from the composer's and artist's perspectives; and “under the hood,” developer's-eye views of SuperCollider's inner workings. A Web site accompanying the book offers code, links to the application itself and its source code, and a variety of third-party extras, extensions, libraries, and examples.

Representations of Musical Signals Oxford University Press, USA

This text reflects the current state of computer technology and music composition. The authors offer clear, practical overviews of program languages, real-time synthesizers, digital filtering, artificial intelligence, and much more.

Synthesizer Technique MIT Press (MA)

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.

An Introduction to the Creation of Electroacoustic Music Springer Science & Business Media

In *The Music Machine*, Curtis Roads brings together 53 classic

articles published in *Computer Music Journal* between 1980 and 1985.

Electric Sound MIT Press

A comprehensive presentation of the techniques and aesthetics of composition with sound particles.

Refining Sound MIT Press

This open access book provides a concise explanation of the fundamentals and background of the surround sound recording and playback technology Ambisonics. It equips readers with the psychoacoustical, signal processing, acoustical, and mathematical knowledge needed to understand the inner workings of modern processing utilities, special equipment for recording, manipulation, and reproduction in the higher-order Ambisonic format. The book comes with various practical examples based on free software tools and open scientific data for reproducible research. The book's introductory section offers a perspective on Ambisonics spanning from the origins of coincident recordings in the 1930s to the Ambisonic concepts of the 1970s, as well as classical ways of applying Ambisonics in first-order coincident sound scene recording and reproduction that have been practiced since the 1980s. As, from time to time, the underlying mathematics become quite involved, but should be comprehensive without sacrificing readability, the book includes an extensive mathematical appendix. The book offers readers a deeper understanding of Ambisonic technologies, and will especially benefit scientists, audio-system and audio-recording engineers. In the advanced sections of the book, fundamentals and modern techniques as higher-order Ambisonic decoding, 3D audio effects, and higher-order recording are explained. Those techniques are shown to be suitable to supply audience areas ranging from studio-sized to hundreds of listeners, or headphone-based playback, regardless whether it is live, interactive, or studio-produced 3D audio material.

The Audio Programming Book Cengage Learning

An Introduction to Music Technology, Second Edition provides a clear overview of the essential elements of music technology for today's musician. This book focuses on the topics that underlie the hardware and software in use today: Sound, Audio, MIDI, Computer Notation, and Computer-Assisted Instruction. Appendices cover necessary computer hardware and software concepts. Written for both music technology majors and non-majors, this textbook introduces fundamental principles and practices so students can learn to work with a wide range of software programs, adapt to new music technologies, and apply music technology in their performance, composition, teaching, and analysis. Features: Thorough explanations of key topics in music technology Content applicable to all software and hardware, not linked to just one piece of software or gear In-depth discussion of digital audio topics, such as sampling rates, resolutions, and file formats Explanations of standard audio plug-ins including dynamics processors, EQs, and delay based effects Coverage of synthesis and sampling in software instruments Pedagogical features, including: Further Reading sections that allow the student to delve deeper into topics of interest Suggested Activities that can be carried out with a variety of different programs Key Terms at the end of each chapter What Do I Need? Chapters covering the types of hardware and software needed in order to put together Audio and MIDI systems A companion website with links to audio examples that demonstrate various concepts, step-by-step tutorials, relevant hardware, software, and additional audio and video resources. The new edition has been fully updated to cover new technologies that have emerged since the first edition, including iOS and mobile platforms, online notation software, alternate controllers, and Open Sound Control (OSC).

The Music Machine Associated University Presse

Sound Synthesis and Sampling provides a comprehensive introduction to the underlying principles and practical techniques applied to both commercial and research sound synthesizers. This new edition has been updated throughout to reflect current needs and practices—revised and placed in a modern context, providing a guide to the theory of sound and sampling in the context of software and hardware that enables sound making. For the revised edition emphasis is on expanding explanations of software and computers, new sections include techniques for making sound physically, sections within analog and digital electronics. Martin Russ is well known and the book praised for its highly readable and non-mathematical approach making the subject accessible to readers starting out on computer music courses or those working in a studio.

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