The Computer Music Tutorial

Computer Music
The mechanics of building construction
The Computer Music Tutorial
Composing Interactive Music
The Desktop Studio
Teklife, Ghettoville, Eski
Elements of Computer Music
Musical Signal Processing
Logic and Information Flow
Computer Models of Musical Creativity
The Haskell School of Music
Making Music with Computers
Composing Electronic Music
Composers and the Computer

LANEY CUNNINGHAM

The Computer Music Tutorial, second edition World Scientific
"He then describes a model that integrates these different aspects - an inductive-association computational process that can create music. Cope's writing style is lively and nontechnical; the reader needs neither knowledge of computer programming nor specialized computer hardware or software to follow the text."--Jacket.

Creating Sounds from Scratch MIT Press
A comprehensive text and reference that covers all aspects of computer music, including digital audio, synthesis techniques, signal processing, musical input devices, performance software, editing systems, algorithmic composition, MIDI, synthesizer architecture, system interconnection, and psychoacoustics. The Computer Music Tutorial is a comprehensive text and reference that covers all aspects of computer music, including digital audio, synthesis techniques, signal processing, musical input devices, performance software, editing systems, algorithmic composition, MIDI, synthesizer architecture, system interconnection, and psychoacoustics. A special effort has been made to impart an appreciation for the rich history behind current activities in the field. Profusely illustrated and exhaustively referenced and cross-referenced, The Computer Music Tutorial provides a step-by-step introduction to the entire field of computer music techniques. Written for nontechnical as well as technical readers, it uses hundreds of charts, diagrams, screen images, and photographs

as well as clear explanations to present basic concepts and terms. Mathematical notation and program code examples are used only when absolutely necessary. Explanations are not tied to any specific software or hardware. The material in this book was compiled and refined over a period of several years of teaching in classes at Harvard University, Oberlin Conservatory, the University of Naples, IRCAM, Les Ateliers UPIC, and in seminars and workshops in North America, Europe, and Asia.
Analysis, Synthesis, and Perception of Musical Sounds MIT Press (MA)
JAVA FOR KIDS is a beginning programming tutorial consisting of 10 chapters explaining (in simple, easy-to-follow terms) how to build a Java application. Students learn about project design, object-oriented programming, console applications, graphics applications and many elements of the Java language. Numerous examples are used to demonstrate every step in the building process. The tutorial also includes several detailed computer projects for students to build and try. These projects include a number guessing game, a card game, an allowance calculator, a state capitals game, Tic-Tac-Toe, a simple drawing program, and even a basic video game. JAVA FOR KIDS is presented using a combination of over 400 pages of FULL-COLOR notes and actual Java examples. This teacher or parent facilitated material should be understandable to kids aged 10 and up. No programming experience is necessary, but familiarity with doing common tasks using a computer operating system (simple editing, file maintenance, understanding directory structures, working on the Internet) is expected. JAVA FOR KIDS requires Windows XP-SP2, Vista or Windows 7. You will also need JCreator 5.0 SE and Version 7 of the Java Development Kit. The Java source code and all needed multimedia files are available for download from the publisher's website (www.KidwareSoftware.com) after book registration.
Csound OUP USA
This book contains a complete and accurate mathematical treatment of the sounds of music with an emphasis on musical timbre. The book spans the range from tutorial introduction to advanced research and application to speculative assessment of its various techniques. All the contributors use a generalized additive sine wave model for describing musical timbre which gives a conceptual unity, but is of sufficient utility to be adapted to many different tasks.
Java for Kids - a Computer Programming Tutorial Mit Press
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

Foundations of Computer Music William Kaufmann Incorporated

The logic of information flow has applications in both computer science and natural language processing and is a growing area within mathematical and philosophical logic.

The Art of Mixing MIT Press

David Gibson uses 3D visual representations of sounds in a mix as a tool to explain the dynamics that can be created in a mix. This book provides an in-depth exploration into the aesthetics of what makes a great mix. Gibson’s unique approach explains how to map sounds to visuals in order to create a visual framework that can be used to analyze what is going on in any mix. Once you have the framework down, Gibson then uses it to explain the traditions that have be developed over time by great recording engineers for different styles of music and songs. You will come to understand everything that can be done in a mix to create dynamics that affect people in really deep ways. Once you understand what engineers are doing to create the great mixes they do, you can then use this framework to develop your own values as to what you feel is a good mix. Once you have a perspective on what all can be done, you have the power to be truly creative on your own – to create whole new mixing possibilities. It is all about creating art out of technology. This book goes beyond explaining what the equipment does – it explains what to do with the equipment to make the best possible mixes.

The Producer's Music Theory Handbook Hal Leonard Corporation

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 vocodor, wavelets, analysis by chaotic functions), object-oriented and artificial intelligence representations, musical interfaces and the integration of signal processing techniques in concert performance.

Music and Computers Oxford University Press

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

Musimathics, Volume 1 MIT 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 nine case studies that analyze key works in the musical and technical development of computer music. The book's companion website offers demonstration videos of the techniques used and downloadable software. There, readers can view interviews and test emulations of the software used by the composers for themselves. The software also presents musical analyses of each of the nine case studies to enable readers to engage with the musical structure aurally and interactively.

The Oxford Handbook of Algorithmic Music CRC Press

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

The Technology of Computer Music MIT Press

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.

Microsound Oxford University Press, USA

With the ongoing development of algorithmic composition programs and communities of practice expanding, algorithmic music faces a turning point. Joining dozens of emerging and established scholars alongside leading practitioners in the field, chapters in this Handbook both describe the state of algorithmic composition and also set the agenda for critical research on and analysis of algorithmic music. Organized into four sections, chapters explore the music's history, utility, community, politics, and potential for mass consumption. Contributors address such issues as the role of algorithms as co-performers, live coding practices, and discussions of the algorithmic culture as it currently exists and what it can potentially contribute society, education, and ecommerce. Chapters engage particularly with post-human perspectives - what new musics are now being found through algorithmic means which humans could not otherwise have made - and, in reciprocation, how algorithmic music is being assimilated back into human culture and what meanings it subsequently takes. Blending technical, artistic, cultural, and scientific viewpoints, this Handbook positions algorithmic music making as an essentially human activity.

The Music Machine MIT Press

Design and implement video game sound from beginning to end with this hands-on course in game audio. Music and sound effects speak to players on a deep level, and this book will show you how to design and implement powerful, interactive sound that measurably improves gameplay. If you are a sound designer or composer and want to do more than just create audio elements and hand them over to someone else for insertion into the game, this book is for you. You'll understand the game development process and implement vital audio experiences-not just create music loops or one-off sound effects. The Game Audio Tutorial isn't just a book-you also get a powerful website (www.thegameaudiotutorial.com)

The Theory and Technique of Electronic Music 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.

Inside Computer Music MIT Press

Home recording using computers is one of the fastest growth segments in music. Over a half-dozen new magazines addressing this market have launched in the last five years alone, helping make the computer the dominant tool of the audio industry and the "at home" recordist. With the right software, your computer can be a recorder, mixer, editor, video production system, and even a musical instrument. The Desktop Studio will help you get the most out of your computer and turn it - and you - into a creative powerhouse. It is a fully illustrated, comprehensive look at software and hardware, and provides expert tips for getting the most out of your music computer. Emile Menasche is a writer, editor, composer and producer living in the New York metro area.

The Oxford Handbook of Computer Music MIT Press

Interactive music refers to a composition or improvisation in which software interprets live performances to produce music generated or modified by computers. In Composing Interactive Music, Todd Winkler presents both the technical and aesthetic possibilities of this increasingly popular area of computer music. His own numerous compositions have been the laboratory for the research and development that resulted in this book. The author's examples use a graphical programming language called Max. Each example in the text is accompanied by a picture of how it appears on the computer screen. The same examples are included as software on the accompanying CD-ROM, playable on a Macintosh computer with a MIDI keyboard. Although the book is aimed at those interested in writing music and software using Max, the casual reader can learn the basic concepts of interactive composition by just reading the text, without running any software. The book concludes with a discussion of recent multimedia work incorporating projected images and video playback with sound for concert performances and art installations.

The Game Audio Tutorial 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

The Sound of Innovation Taylor & Francis

Develops both the theory and the practice of synthesizing musical sounds using computers. This work contains chapters that starts with a theoretical description of one technique or problem area and ends with a series of working examples, covering a range of applications. It is also suitable for computer music researchers.

The Computer Music Tutorial, second edition Oxford University Press

Representations of Musical Signals describes a new generation of digital audio and computer music systems made possible by recent advances in digital signal processing theory, hardware design, and programming techniques. It explores new representations of musical signals that can have profound effects on the way musicians conceive of and realize musical ideas. In particular, the book focuses on models that combine time-domain and frequency-domain representations (grains, wavelets, and physical models), visual programming and advanced user interfaces, and that incorporate musical knowledge using artificial intelligence techniques and adaptive neural networks. The 14 contributions take up issues of how musical signals should be displayed to musicians, engineers, and scientists who want to work with them, how professionals can work with the representations to accomplish musical tasks, how systems can be designed to permit working with multiple views of the same signal, and how representations of musical signals should be organized to promote efficient communication between devices using these signals. Giovanni DePoli is a member of the faculty of the Department of Informatics and Electronics at the University of Padua. Aldo Piccialli is a member of the faculty of the Department

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