

Gerhard Nierhaus *Editor*

Patterns of Intuition

Musical Creativity in the Light of
Algorithmic Composition



Springer

Patterns Of Intuition Musical Creativity In The Light Of Algorithmic Composition

David Cope



Patterns Of Intuition Musical Creativity In The Light Of Algorithmic Composition:

Patterns of Intuition Gerhard Nierhaus, 2015-01-11 The present book is the result of a three year research project which investigated the creative act of composing by means of algorithmic composition Central to the investigation are the compositional strategies of 12 composers which were documented through a dialogic and cyclic process of modelling and evaluating musical materials The aesthetic premises and compositional approaches configure a rich spectrum of diverse positions which is reflected also in the kinds of approaches and methods used These approaches and methods include the generation and evaluation of chord sequences using genetic algorithms the application of morphing strategies to research harmonic transformations an automatic classification of personal preferences via machine learning and an application of mathematical music theory to the analysis and resynthesis of musical material The second part of the book features contributions by Sandeep Bhagwati William Brooks David Cope Darla Crispin Nicolas Donin and Guerino Mazzola These authors variously consider the project from different perspectives offer independent approaches or provide more general reflections from their respective research fields *Formal Methods in Musicology* Francis Knights, Pablo Padilla, 2025-04-28 In recent years established techniques from disciplines like mathematics and statistics have successfully been applied to music analysis helping us to understand style chronology and many other components of composition Using examples drawn from a variety of musical types and styles especially classical music this book explains how to use some of these techniques and how they can be applied to various musical genres This is supported by a series of specialist case studies provided by expert researchers together with suggestions as to other types of questions that can be asked and answered using these methods *The Digital Musician* Andrew Hugill, 2018-09-03 The Digital Musician Third Edition is an introductory textbook for creative music technology and electronic music courses Written to be accessible to students from any musical background this book examines cultural awareness artistic identity and musical skills offering a system agnostic survey of digital music creation Each chapter presents creative projects that reinforce concepts as well as case studies of real musicians and discussion questions for further reflection This third edition has been updated to reflect developments in an ever changing musical landscape most notably the proliferation of mobile technologies covering topics such as collaborative composition virtual reality data sonification and digital scores while encouraging readers to adapt to continuous technological changes With an emphasis on discovering one's musical voice and identity and tools and ideas that are relevant in any musical situation The Digital Musician is sure to be an invaluable student resource for years to come Features of the third edition Additional case studies with new interviews exclusive to the third edition Revised chapter structure with an emphasis on student focus and understanding featuring additional and expanded chapters Reinstatement of selected and updated first edition topics including mixing mastering and microphones Companion website featuring case study interviews a historical listening list bibliography and many additional projects Visit the companion website [www andrewhugill com](http://www.andrewhugill.com)

thedigitalmusician **Experience Music Experiment** William Brooks,2021-08-19 Truth happens to an idea So wrote William James in 1907 and twenty four years later John Dewey argued that artistic experience entailed a process of doing and undergoing But what do these ideas have to do with music or with research conducted in and through music that is with artistic research In this collection of essays fourteen very different authors respond with distinct and challenging perspectives Some report on their own experiments and experiences some offer probing analyses of noteworthy practices some view historical continuities through the lens of pragmatism and artistic experiment The resulting collection yields new insights into what musicians do how they experiment and what they experience insights that arise not from doctrine but from diverse voices seeking common ground in and through experimental discourse artistic research in and of itself

Composing Processes and Artistic Agency Tasos Zembylas,Martin Niederauer,2017-07-31 This monograph carries out an in depth investigation into compositional processes shedding new light on the components and conditions that constitute artistic agency Artistic agency relies on the interlocking of such activities that emerge from various propositional and non propositional experiential corporeal sensory forms of knowledge listening feeling imagining trying out reflecting noting and correcting which represents a small selection of the multifaceted composing activities The book develops an understanding of artistic agency and mastery in its fundamentally social nature through the important though largely ignored output of creative compositional processes Using a mixture of case studies and theoretical frameworks this book will appeal to sociologists musicologists creative studies scholars and artists particularly those who teach composition or research on this topic as well as students of MA and PhD level Artificial Intelligence - Intelligent Art? Robin Markus Auer,Dietmar

Elflein,Sebastian Kunas,Jan Röhnert,Christoph Seelinger,Eckart Voigts,2024-05-06 As algorithmic data processing increasingly pervades everyday life it is also making its way into the worlds of art literature and music In doing so it shifts notions of creativity and evokes non anthropocentric perspectives on artistic practice This volume brings together contributions from the fields of cultural studies literary studies musicology and sound studies as well as media studies sociology of technology and beyond presenting a truly interdisciplinary state of the art picture of the transformation of creative practice brought about by various forms of AI **Enabling AI Applications in Data Science** Aboul-Ella

Hassanien,Mohamed Hamed N. Taha,Nour Eldeen M. Khalifa,2020-09-23 This book provides a detailed overview of the latest developments and applications in the field of artificial intelligence and data science AI applications have achieved great accuracy and performance with the help of developments in data processing and storage It has also gained strength through the amount and quality of data which is the main nucleus of data science This book aims to provide the latest research findings in the field of artificial intelligence with data science *System Innovation for a World in Transition* Artde Donald Kin-Tak Lam,Stephen D Prior,Siu-Tsen Shen,Sheng-Joue Young,Liang-Wen Ji,2023-12-27 System Innovation for a World in Transition Applied System Innovation IX includes the contributions presented at the IEEE 9th International Conference on

Applied System Innovation ICASI 2023 Chiba Japan 21-25 April 2023 The conference received more than 600 submitted papers from 12 different countries whereby roughly one quarter of these papers was selected to present at ICASI 2023 The book aims to provide an integrated communication platform for researchers from a wide range of topics including information technology communication science applied mathematics computer science advanced material science and engineering Hopefully it will enhance interdisciplinary collaborations between science and engineering technologists in the fields of academics and related industries *Algorithmic Composition* Gerhard Nierhaus, 2009-08-28 Algorithmic composition composing by means of formalizable methods has a century old tradition not only in occidental music history This is the first book to provide a detailed overview of prominent procedures of algorithmic composition in a pragmatic way rather than by treating formalizable aspects in single works In addition to an historic overview each chapter presents a specific class of algorithm in a compositional context by providing a general introduction to its development and theoretical basis and describes different musical applications Each chapter outlines the strengths weaknesses and possible aesthetical implications resulting from the application of the treated approaches Topics covered are markov models generative grammars transition networks chaos and self similarity genetic algorithms cellular automata neural networks and artificial intelligence are covered The comprehensive bibliography makes this work ideal for the musician and the researcher alike

The Algorithmic Composer David Cope, 2000-01-01 Accompanying disc contains Melody Predictor a program Compose a program Fun D j vu a program Backtalk some tutorials Alice an interactive program recorded performances of many of the works presented in the text and MIDI performances of most of the music in the figures *Computer Models of Musical Creativity* David Cope, 2005 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 **The Oxford Handbook of Algorithmic Music** R. T. Dean, 2018 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 **Handbook of Artificial Intelligence for Music** Eduardo Reck Miranda, 2021-07-02 This book presents comprehensive coverage of the latest advances in research into enabling machines to listen to and compose new music It includes chapters introducing what we know about human musical intelligence and on how this knowledge can be simulated with AI The development of interactive musical robots and emerging new approaches to AI based musical creativity are also introduced including brain computer music interfaces bio processors and quantum computing Artificial Intelligence AI technology permeates the music industry from management systems for recording studios to recommendation systems for online commercialization of music through the Internet Yet whereas AI for online music distribution is well advanced this book focuses on a largely unexplored application AI for

creating the actual musical content

Virtual Music David Cope, 2004-01-30 Virtual Music is about artificial creativity Focusing on the author's Experiments in Musical Intelligence computer music composing program the author and a distinguished group of experts discuss many of the issues surrounding the program including artificial intelligence music cognition and aesthetics The book is divided into four parts The first part provides a historical background to Experiments in Musical Intelligence including examples of historical antecedents followed by an overview of the program by Douglas Hofstadter The second part follows the composition of an Experiments in Musical Intelligence work from the creation of a database to the completion of a new work in the style of Mozart It includes in sophisticated lay terms relatively detailed explanations of how each step in the process contributes to the final composition The third part consists of perspectives and analyses by Jonathan Berger Daniel Dennett Bernard Greenberg Douglas R Hofstadter Steve Larson and Eleanor Selfridge Field The fourth part presents the author's responses to these commentaries as well as his thoughts on the implications of artificial creativity The book and corresponding Web site includes an appendix providing extended musical examples referred to and discussed in the book including composers such as Scarlatti Bach Mozart Beethoven Schubert Chopin Puccini Rachmaninoff Prokofiev Debussy Bartok and others It is also accompanied by a CD containing performances of the music in the text

An Open Design for Computer-Aided Algorithmic Music Composition Christopher Ariza, 2005 This dissertation introduces a new design for a computer aided algorithmic music composition system Rather than exploring specific algorithms this study focuses on system and component design The design introduced here is demonstrated through its implementation in athenaCL a modular polyphonic poly paradigm algorithmic music composition system in a cross platform interactive command line environment The athenaCL system offers an open source object oriented composition tool written in Python The system can be scripted and embedded and includes integrated instrument libraries post tonal and microtonal pitch modeling tools multiple format graphical outputs and musical output in Csound MIDI audio file XML and text formats Software design analysis is framed within a broad historical and intertextual study of the themes approaches and systems of computer aided algorithmic composition CAAC A detailed history of the earliest experiments as well as analysis of the foundational CAAC systems is provided Common problems and interpretations of CAAC are then presented in a historical and intertextual context drawn from the writings and systems of numerous composers and developers Toward the goal of developing techniques of comparative software analysis a survey of system design archetypes based on seven descriptors of CAAC systems is presented With this foundation athenaCL system components are analyzed in detail System components are divided into abstractions of musical materials abstractions of musical procedures and system architecture For each component object models Python examples and diagrams are provided Further each component is given context in terms of its compositional implications and relation to alternative and related models from the history of CAAC

The Musical-Mathematical Mind Gabriel Pareyon, Silvia Pina-Romero, Octavio A. Agustín-Aquino, Emilio

Lluis-Puebla,2017-10-20 This book presents a deep spectrum of musical mathematical physical and philosophical perspectives that have emerged in this field at the intersection of music and mathematics In particular the contributed chapters introduce advanced techniques and concepts from modern mathematics and physics deriving from successes in domains such as Topos theory and physical string theory The authors include many of the leading researchers in this domain and the book will be of value to researchers working in computational music particularly in the areas of counterpoint gesture and Topos theory

Rise of AI Music Rebecca Murphy,AI,2025-02-24 Rise of AI Music explores the burgeoning intersection of artificial intelligence and music examining how AI is transforming music creation production and consumption The book delves into the core technologies that enable AI to compose melodies learn musical styles and even improvise raising fundamental questions about creativity authorship and the future of music For instance AI s ability to mimic established artists raises complex ethical and copyright issues The book progresses through three key sections It begins by introducing the technologies behind AI music then analyzes the implications for artists and the music industry including discussions of legal challenges and collaborative human AI environments Finally it explores AI s potential to democratize music creation empowering individuals regardless of musical training This approach allows Rise of AI Music to offer a comprehensive view of AI s impact balancing technological insights with broader societal and artistic considerations What sets this book apart is its focus on the ethical and societal implications of AI music considering the broader impact on human creativity artist livelihoods and the future of the music industry It analyzes datasets of AI generated music to identify patterns and trends offering readers practical insights into navigating the evolving landscape of AI in music

Readings in Computer-generated Music Denis Baggi,1992 Computer Applications Arts and Humanities

Readings in Music and Artificial Intelligence Eduardo Reck Miranda,2013-10-28 The interplay between emotional and intellectual elements feature heavily in the research of a variety of scientific fields including neuroscience the cognitive sciences and artificial intelligence AI This collection of key introductory texts by top researchers worldwide is the first study which introduces the subject of artificial intelligence and music to beginners Eduardo Reck Miranda received a Ph D in music and artificial intelligence from the University of Edinburgh Scotland He has published several research papers in major international journals and his compositions have been performed worldwide Also includes 57 musical examples

Music and AI Alexandra Bonnici,Roger B. Dannenberg,Steven Kemper,Kenneth P. Camilleri,2021-03-16

Uncover the mysteries within Explore with is enigmatic creation, Discover the Intrigue in **Patterns Of Intuition Musical Creativity In The Light Of Algorithmic Composition** . This downloadable ebook, shrouded in suspense, is available in a PDF format (*). Dive into a world of uncertainty and anticipation. Download now to unravel the secrets hidden within the pages.

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