Generative Design Visualize Program And Create With Processing Hartmut Bohnacker

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Generative Art Matt Pearson 2011-06-29 Summary Generative Art presents both the technique and the beauty of algorithmic art. The book includes high-quality examples of generative art, along with the specific programmatic steps author and artist Matt Pearson followed to create each unique piece using the Processing programming language. About the Technology Artists have always explored new media, and computer-based artists are no exception. Generative art, a technique where the artist creates print or onscreen images by using computer algorithms, finds the artistic intersection of programming, computer graphics, and individual expression. The book includes a tutorial on Processing, an open source programming language and environment for people who want to create images, animations, and interactions. About the Book Generative Art presents both the techniques and the beauty of algorithmic art. In it, you'll find dozens of high-quality examples of generative art, along with the specific steps the author followed to create each unique piece using the

Processing programming language. The book includes concise tutorials for each of the technical components required to create the book's images, and it offers countless suggestions for how you can combine and reuse the various techniques to create your own works. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book. What's Inside The principles of algorithmic art A Processing language tutorial Using organic, pseudo-random, emergent, and fractal processes
=== Table of Contents Part 1 Creative Coding Generative Art: In Theory and Practice Processing: A Programming Language for ArtistsPart 2 Randomness and Noise The Wrong Way to Draw A Line The Wrong Way to Draw a Circle Adding Dimensions Part 3 Complexity Emergence Autonomy Fractals Processing Ira Greenberg 2007-12-31 First Processing book on the market Processing is a nascent technology rapidly increasing in popularity Links with the creators of Processing will help sell the

book
A Touch of Code Robert Klanten 2011 Today's designers are creating compelling atmospheres and interactive experiences by merging hardware and software with architecture and design. This book is a collection of this innovative work produced where virtual realms meet the real world and where dataflow confronts the human senses. It presents an international spectrum of interdisciplinary projects at the intersection of laboratory, trade show, and urban space that play with the new frontiers of perception, interaction, and staging created by current technology. The work reveals how technology is fundamentally changing and expanding strategies for the targeted use of architecture, art, communication, and design for the future.
Processing for Visual Artists Andrew Glassner 2011-09-27 Learn how to create gorgeous and expressive imagery with the Processing graphics language and environment. It's easy with this practical, hands-on book. Processing is for artists, designers, visualization creators, hobbyists, or anyone else looking to create images, animation, and interactive pieces for art, education, science, or business. Process
An Introduction to Structural Optimization Peter W. Christensen 2008-10-20 This book has grown out of lectures and courses given at Linköping University, Sweden, over a period of 15 years. It gives an introductory treatment of problems and methods of structural optimization. The three basic classes of geometrical - timization problems of mechanical structures, i. e. , size, shape and topology op- mization, are treated. The focus is on concrete numerical solution methods for d- crete and (?nite element) discretized linear elastic structures. The style is explicit and practical: mathematical proofs are provided when arguments can be kept e- mentary but are otherwise only cited, while implementation details are frequently provided. Moreover, since the text has an emphasis on geometrical design problems, where the design is represented by continuously varying—frequently very many— variables, so-called ?rst order methods are central to the treatment. These methods are based on sensitivity analysis, i. e. , on establishing ?rst order derivatives for - jectives and constraints. The classical ?rst order methods that we emphasize are CONLIN and MMA, which are based on explicit, convex and separable appro- mations. It should be remarked that the classical and frequently used so-called op- mality criteria method is also of this kind. It may also be noted in this context that zero order methods such as response surface methods, surrogate models, neural n- works, genetic algorithms, etc. , essentially apply to different types of problems than the ones treated here and should be presented elsewhere.
Parametric Design for Architecture Wassim Jabi 2013-09-15 Architects use CAD to help them visualize their ideas. Parametric design is a fast-growing development of CAD that lets architects and designers specify the key parameters of their model and make changes interactively. Whenever changes are made the rest of the model updates automatically. Through a detailed description of various parametric, generative and algorithmic techniques, this book provides a practical guide to generating geometric and topological solutions for various situations, including explicit step-by-step tutorials. While the techniques and algorithms can be generalized to suit to any parametric environment, the book illustrates its concepts using the scripting languages of one of the most powerful 3D visualization and animation design software systems (Autodesk 3ds Max MAXScript), one of the most popular open-source Java-based scripting environments (Processing), and a brand new language specifically tailored for parametric and generative design (Autodesk DesignScript). This clear, accessible book will have a wide appeal to students and practitioners who would like to experiment with parametric techniques.
Getting Started with p5.js Lauren McCarthy 2015-10-12 With p5.js, you can think of your entire Web browser as your canvas for

sketching with code! Learn programming the fun way--by sketching with interactive computer graphics! Getting Started with p5.js contains techniques that can be applied to creating games, animations, and interfaces. p5.js is a new interpretation of Processing written in JavaScript that makes it easy to interact with HTML5 objects, including text, input, video, webcam, and sound. Like its older sibling Processing, p5.js makes coding accessible for artists, designers, educators, and beginners. Written by the lead p5.js developer and the founders of Processing, this book provides an introduction to the creative possibilities of today's Web, using JavaScript and HTML. With Getting Started with p5.js, you'll: Quickly learn programming basics, from variables to objects Understand the fundamentals of computer graphics Create interactive graphics with easy-to-follow projects Learn to apply data visualization techniques Capture and manipulate webcam audio and video feeds in the browser

Graphic Design Rob Giampietro 2011 Published on the occasion of an exhibition held at the Walker Art Center, Minneapolis, Minn. and four other institutions between Oct. 22. 2011 and Dec. 2013.

The Nature of Code Daniel Shiffman 2012 How can we capture the unpredictable evolutionary and emergent properties of nature in software? How can understanding the mathematical principles behind our physical world help us to create digital worlds? This book focuses on a range of programming strategies and techniques behind computer simulations of natural systems, from elementary concepts in mathematics and physics to more advanced algorithms that enable sophisticated visual results. Readers will progress from building a basic physics engine to creating intelligent moving objects and complex systems, setting the foundation for further experiments in generative design. Subjects covered include forces, trigonometry, fractals, cellular automata, self-organization, and genetic algorithms. The book's examples are written in Processing, an open-source language and development environment built on top of the Java programming language. On the book's website (http: //www.natureofcode.com), the examples run in the browser via Processing's JavaScript mode.

House X Peter Eisenman 1982 Uses the architectural design of a house to show the principles of structuralism and a possible reaction against traditional functionalism

Creating Procedural Artworks with Processing Penny de Byl 2017-05-02 Creating Procedural Artworks with Processing - A Holistic Guide, is for those seeking to learn computer programming from the very basics to the more advanced concepts. It uses the Processing language (processing.org) to visualise the concepts through the production of computer graphics that illustrate the coding principles while being artworks in their own right. This book started as a set of tutorials for university level multimedia students to introduce them to computer programming through the development of artworks. It's therefore presented in a non-threatening way that will ease the reader into programming. This book has been written for absolute beginners who want to learn to program. It approaches coding through a unique combination of teaching programming while keeping in mind the principles of design and mathematics. All these elements are essential in a global economy filled with electronic interactive experiences and virtual reality. The chapters are organised to weave together programming functionality and design principles presenting one concept at a time, with multiple hands on exercises in each chapter. Special features include: * 10 chapters building on each other one concept at a time. * 20 practical laboratories for exploring digital art and programming concepts. * Over 35 detailed step by step hands on activities. * Over 95 questions to test your understanding. * Answers to all exercises and questions. For more information visit: http://holistic3d.com/creating-procedural-artworks/ Experience Processing in action at http://holistic3d.com/processing

Make Your Own Algorithmic Art Tariq Rashid 2018-03-31 A Gentle Introduction to Creative Coding with P5js. A fun step-by-step

gentle introduction to creating digital art with computers, designed especially for: artists new to coding art, design and digital media students, technologists wanted to explore their creativity teachers and parents seeking more visual and exciting approaches to teaching computer science Starting from the very basics, we'll learn to: understand how computers create digital images code with a popular computer language designed for artists, called Processing, enabled for the web with p5js develop and appreciate algorithms, mathematical recipes, which can create surprisingly beautiful art easily share your code and art on the web, potentially reaching an audience of billions of internet users We'll discover and practice basic computer graphics techniques, explore simple algorithms that create interesting visual forms, and work through example projects to experience the process of developing algorithmic art from inspiration, through problem solving, to final refinement. By the end of the course, you will be coding confidently, appreciating the beauty of mathematics, and wanting to explore more advanced ideas and methods.

Generative Design Benedikt Gross 2018-11-13 Generative design, once known only to insiders as a revolutionary method of creating artwork, models, and animations with programmed algorithms, has in recent years become a popular tool for designers. By using simple languages such as JavaScript in p5.js, artists and makers can create everything from interactive typography and textiles to 3D-printed furniture to complex and elegant infographics. This updated volume gives a jump-start on coding strategies, with step-by-step tutorials for creating visual experiments that explore the possibilities of color, form, typography, and images. Generative Design includes a gallery of all-new artwork from a range of international designers—fine art projects as well as commercial ones for Nike, Monotype, Dolby Laboratories, the musician Bjork, and others.

Getting Started with Processing.py Allison Parrish 2016-05-11 Processing opened up the world of programming to artists, designers, educators, and beginners. The Processing.py Python implementation of Processing reinterprets it for today's web. This short book gently introduces the core concepts of computer programming and working with Processing. Written by the co-founders of the Processing project, Reas and Fry, along with co-author Allison Parrish, Getting Started with Processing.py is your fast track to using Python's Processing mode.

Recent Trends in Manufacturing and Materials Towards Industry 4.0 Muhammed Nafis Osman Zahid 2021-03-22 This book presents part of the proceedings of the Manufacturing and Materials track of the iM3F 2020 conference held in Malaysia. This collection of articles deliberates on the key challenges and trends related to manufacturing as well as materials engineering and technology in setting the stage for the world in embracing the fourth industrial revolution. It presents recent findings with regards to manufacturing and materials that are pertinent towards the realizations and ultimately the embodiment of Industry 4.0, with contributions from both industry and academia.

When the Machine Made Art Grant D. Taylor 2014-04-10 Considering how culturally indispensable digital technology is today, it is ironic that computer-generated art was attacked when it burst onto the scene in the early 1960s. In fact, no other twentieth-century art form has elicited such a negative and hostile response. When the Machine Made Art examines the cultural and critical response to computer art, or what we refer to today as digital art. Tracing the heated debates between art and science, the societal anxiety over nascent computer technology, and the myths and philosophies surrounding digital computation, Taylor is able to identify the destabilizing forces that shape and eventually fragment the computer art movement.

Processing, second edition Casey Reas 2014-12-19 The new edition of an introduction to computer programming within the context of the visual arts, using the open-source programming language Processing; thoroughly updated throughout. The visual

arts are rapidly changing as media moves into the web, mobile devices, and architecture. When designers and artists learn the basics of writing software, they develop a new form of literacy that enables them to create new media for the present, and to imagine future media that are beyond the capacities of current software tools. This book introduces this new literacy by teaching computer programming within the context of the visual arts. It offers a comprehensive reference and text for Processing (www.processing.org), an open-source programming language that can be used by students, artists, designers, architects, researchers, and anyone who wants to program images, animation, and interactivity. Written by Processing's cofounders, the book offers a definitive reference for students and professionals. Tutorial chapters make up the bulk of the book; advanced professional projects from such domains as animation, performance, and installation are discussed in interviews with their creators. This second edition has been thoroughly updated. It is the first book to offer in-depth coverage of Processing 2.0 and 3.0, and all examples have been updated for the new syntax. Every chapter has been revised, and new chapters introduce new ways to work with data and geometry. New "synthesis" chapters offer discussion and worked examples of such topics as sketching with code, modularity, and algorithms. New interviews have been added that cover a wider range of projects. "Extension" chapters are now offered online so they can be updated to keep pace with technological developments in such fields as computer vision and electronics. Interviews SUE.C, Larry Cuba, Mark Hansen, Lynn Hershman Leeson, Jürg Lehni, LettError, Golan Levin and Zachary Lieberman, Benjamin Maus, Manfred Mohr, Ash Nehru, Josh On, Bob Sabiston, Jennifer Steinkamp, Jared Tarbell, Steph Thirion, Robert Winter

The Future of Making Tom Wujec 2017-04-25 Prepare yourself: How things are made is changing. The digital and physical are uniting, from innovative methods to sense and understand our world to machines that learn and design in ways no human ever could; from 3D printing to materials with properties that literally stretch possibility; from objects that evolve to systems that police themselves. The results will radically change our world--and ourselves. The Future of Making illustrates these transformations, showcasing stories and images of people and ideas at the forefront of this radical wave of innovation. Designers, architects, builders, thought leaders--creators of all kinds--have contributed to this look at the materials, connections, and inventions that will define tomorrow. But this book doesn't just catalog the future; it lays down guidelines to follow, new rules for how things are created, that make it the ultimate handbook for anyone who wants to embrace the true future of making.

Aesthetic Programming Winnie Soon 2020-12-31 The book explores the technical as well as cultural imaginaries of programming from its insides, demonstrating the reflexive practice of aesthetic programming, to understand and question existing technological objects and paradigms.

Generative Art James R. Parker 2019-12-15 Generative art is the art of the algorithm where artists must carefully design the nature of their work, and then implement it as a computer program. In the book, J.R. Parker presents computer programming concepts and generative art principles as a way to create algorithmic computer art using art and design best practices. In addition, readers have access to program codes and video tutorials through the book's web site at http: //genart.ca.

AAD Algorithms-Aided Design. Parametric Strategies Using Grasshopper Arturo Tedeschi 2014

Generative AI with Python and TensorFlow 2 Joseph Babcock 2021-04-30 Fun and exciting projects to learn what artificial minds can create Key FeaturesCode examples are in TensorFlow 2, which make it easy for PyTorch users to follow alongLook inside the most famous deep generative models, from GPT to MuseGANLearn to build and adapt your own models in TensorFlow 2.xExplore

exciting, cutting-edge use cases for deep generative AIBook Description Machines are excelling at creative human skills such as painting, writing, and composing music. Could you be more creative than generative AI? In this book, you'll explore the evolution of generative models, from restricted Boltzmann machines and deep belief networks to VAEs and GANs. You'll learn how to implement models yourself in TensorFlow and get to grips with the latest research on deep neural networks. There's been an explosion in potential use cases for generative models. You'll look at Open AI's news generator, deepfakes, and training deep learning agents to navigate a simulated environment. Recreate the code that's under the hood and uncover surprising links between text, image, and music generation. What you will learnExport the code from GitHub into Google Colab to see how everything works for yourselfCompose music using LSTM models, simple GANs, and MuseGANCreate deepfakes using facial landmarks, autoencoders, and pix2pix GANLearn how attention and transformers have changed NLPBuild several text generation pipelines based on LSTMs, BERT, and GPT-2Implement paired and unpaired style transfer with networks like StyleGANDiscover emerging applications of generative AI like folding proteins and creating videos from imagesWho this book is for This is a book for Python programmers who are keen to create and have some fun using generative models. To make the most out of this book, you should have a basic familiarity with math and statistics for machine learning.
Introduction to Javascript Deborah Orret 2021-03-09 Anyone can learn to program - and this book is for everyone! Written for a high school web development class and meant to be read by those with little to no programming experience, this coursebook aims to eliminate the fear that is often associated with learning how to program and make coding accessible, simple, and fun!
The Age of Data Christoph Grunberger 2021-12-07 A compendium for everybody who is interested in what art will be like in the upcoming decade: Global pioneers of data-driven design share their projects and give behind-the-scene looks at some of the most genre-redefining work, providing insights and outlooks on how it influences our current and future reality.
Processing Ira Greenberg 2013-05-13 Processing: Creative Coding and Generative Art in Processing 2 is a fun and creative approach to learning programming. Using the easy to learn Processing programming language, you will quickly learn how to draw with code, and from there move to animating in 2D and 3D. These basics will then open up a whole world of graphics and computer entertainment. If you've been curious about coding, but the thought of it also makes you nervous, this book is for you; if you consider yourself a creative person, maybe worried programming is too non-creative, this book is also for you; if you want to learn about the latest Processing 2.0 language release and also start making beautiful code art, this book is also definitely for you. You will learn how to develop interactive simulations, create beautiful visualizations, and even code image-manipulation applications. All this is taught using hands-on creative coding projects. Processing 2.0 is the latest release of the open-source Processing language, and includes exciting new features, such as OpenGL 2 support for enhanced 3D graphics performance. Processing: Creative Coding and Generative Art in Processing 2 is designed for independent learning and also as a primary text for an introductory computing class. Based on research funded by the National Science Foundation, this book brings together some of the most engaging and successful approaches from the digital arts and computer science classrooms. Teaches you how to program using a fun and creative approach. Covers the latest release of the Processing 2.0 language. Presents a research based approach to learning computing.
How to Design Programs, second edition Matthias Felleisen 2018-05-04 A completely revised edition, offering new design recipes for interactive programs and support for images as plain

values, testing, event-driven programming, and even distributed programming. This introduction to programming places computer science at the core of a liberal arts education. Unlike other introductory books, it focuses on the program design process, presenting program design guidelines that show the reader how to analyze a problem statement, how to formulate concise goals, how to make up examples, how to develop an outline of the solution, how to finish the program, and how to test it. Because learning to design programs is about the study of principles and the acquisition of transferable skills, the text does not use an off-the-shelf industrial language but presents a tailor-made teaching language. For the same reason, it offers DrRacket, a programming environment for novices that supports playful, feedback-oriented learning. The environment grows with readers as they master the material in the book until it supports a full-fledged language for the whole spectrum of programming tasks. This second edition has been completely revised. While the book continues to teach a systematic approach to program design, the second edition introduces different design recipes for interactive programs with graphical interfaces and batch programs. It also enriches its design recipes for functions with numerous new hints. Finally, the teaching languages and their IDE now come with support for images as plain values, testing, event-driven programming, and even distributed programming.

Generative AI with Python and TensorFlow 2 Joseph Babcock 2021-04-30 Packed with intriguing real-world projects as well as theory, Generative AI with Python and TensorFlow 2 enables you to leverage artificial intelligence creatively and generate human-like data in the form of speech, text, images, and music.
Architecture | Design | Data Phillip Bernstein 2018-09-24 A systemic transformation is underway in architectural design, engineering and construction. The discipline and profession of architecture is being reshaped in a moment where information, insight and predictions generated during the design process move into construction no longer essentially via drawings. Other, more profound digital techniques yield fundamentally different workflows, responsibilities and business models for architects. This book offers a comprehensive framework, detailed analysis and critical assessment of the challenges and opportunities inherent in those changes. The author sets out to provide direction for a new era in architectural creation that can be understood and managed by a profession which must become better equipped to direct its future.

Creative Code John Maeda 2004 The creator of the designer website, maeda@media, explores the computer as an artistic medium, recounting how his students and he have rendered some of the most digitally sophisticated pieces of design in modern history, in a compilation that showcases some of the ACG's key achievements in the fields of digital typography, interaction design, education, and more. Original.

The Computational Beauty of Nature Gary William Flake 2000-01-27 Gary William Flake develops in depth the simple idea that recurrent rules can produce rich and complicated behaviors. In this book Gary William Flake develops in depth the simple idea that recurrent rules can produce rich and complicated behaviors. Distinguishing "agents" (e.g., molecules, cells, animals, and species) from their interactions (e.g., chemical reactions, immune system responses, sexual reproduction, and evolution), Flake argues that it is the computational properties of interactions that account for much of what we think of as "beautiful" and "interesting." From this basic thesis, Flake explores what he considers to be today's four most interesting computational topics: fractals, chaos, complex systems, and adaptation. Each of the book's parts can be read independently, enabling even the casual reader to understand and work with the basic equations and programs. Yet the parts are bound together by the theme of the computer as a laboratory and a metaphor for understanding the universe. The inspired reader will experiment further with the

ideas presented to create fractal landscapes, chaotic systems, artificial life forms, genetic algorithms, and artificial neural networks.

Coding Art Yu Zhang 2021-01-07 Finally, a book on creative programming, written directly for artists and designers! Rather than following a computer science curriculum, this book is aimed at creatives who are working in the intersection of design, art, and education. In this book you'll learn to apply computation into the creative process by following a four-step process, and through this, land in the cross section of coding and art, with a focus on practical examples and relevant work structures. You'll follow a real-world use case of computation art and see how it relates back to the four key pillars, and addresses potential pitfalls and challenges in the creative process. All code examples are presented in a fully integrated Processing example library, making it easy for readers to get started. This unique and finely balanced approach between skill acquisition and the creative process and development makes Coding Art a functional reference book for both creative programming and the creative process for professors and students alike. What You'll Learn Review ideas and approaches from creative programming to different professional domains Work with computational tools like the Processing language Understand the skills needed to move from static elements to animation to interaction Use interactivity as input to bring creative concepts closer to refinement and depth Simplify and extend the design of aesthetics, rhythms, and smoothness with data structures Leverage the diversity of art code on other platforms like the web or mobile applications Understand the end-to-end process of computation art through real world use cases Study best practices, common pitfalls, and challenges of the creative process Who This Book Is For Those looking to see what computation and data can do for their creative expression; learners who want to integrate computation and data into their practices in different perspectives; and those who already know how to program, seeking creativity and inspiration in the context of computation and data.

10 PRINT CHR$(205.5+RND(1)); : GOTO 10 Nick Montfort 2014-08-29 A single line of code offers a way to understand the cultural context of computing. This book takes a single line of code—the extremely concise BASIC program for the Commodore 64 inscribed in the title—and uses it as a lens through which to consider the phenomenon of creative computing and the way computer programs exist in culture. The authors of this collaboratively written book treat code not as merely functional but as a text—in the case of 10 PRINT, a text that appeared in many different printed sources—that yields a story about its making, its purpose, its assumptions, and more. They consider randomness and regularity in computing and art, the maze in culture, the popular BASIC programming language, and the highly influential Commodore 64 computer.

Graphic Design Before Graphic Designers David Jury 2012 Presents a comprehensive history of graphic design and printing, from 1700 to 1914.

Algorithmic Architecture Kostas Terzidis 2006-08-14 Why does the word design owe its origin to Latin and not Greek roots? Where do the limits of the human mind lie? How does ambiguity enter the deterministic world of computation? Who was Parmenides and why is his philosophy still puzzling today? This unique volume challenges the reader to tackle all these complex questions and more. Algorithmic Architecture is not a typical theory-based architectural book; it is not a computer programming or language tutorial book either. It contains a series of provocative design projects, and yet it is not just a design or graphic art book per se. Following the tradition of architecture as a conglomeration of various design fields - engineering, theory, art, and recently, computation - the challenge of this book is to present a concept that, like architecture, is a unifying theme for many diverse disciplines. An algorithm is not only a step-by-step problem-solving

procedure, a series of lines of computer codes or a mechanistic linguistic expression, but is also an ontological construct with deep philosophical, social, design, and artistic repercussions. Consequently, this book presents many, various and often seemingly disparate points of view that lead to the establishment of one common theme; algorithmic architecture.

Generative Design Benedikt Gross 2018-10-30 Generative design, once known only to insiders as a revolutionary method of creating artwork, models, and animations with programmed algorithms, has in recent years become a popular tool for designers. By using simple languages such as JavaScript in p5.js, artists and makers can create everything from interactive typography and textiles to 3D-printed furniture to complex and elegant infographics. This updated volume gives a jump-start on coding strategies, with step-by-step tutorials for creating visual experiments that explore the possibilities of color, form, typography, and images. Generative Design includes a gallery of all-new artwork from a range of international designers—fine art projects as well as commercial ones for Nike, Monotype, Dolby Laboratories, the musician Bjork, and others.

The New Mathematics of Architecture Jane Burry 2012-02-27 Features forty-six projects that showcase how recent developments in math and physics are being applied to architecture.

Morphing Joseph Choma 2015-01-19 Cylinders, spheres and cubes are a small handful of shapes that can be defined by a single word. However, most shapes cannot be found in a dictionary. They belong to an alternative plastic world defined by trigonometry: a mathematical world where all shapes can be described under one systematic language and where any shape can transform into another. This visually striking guidebook clearly and systematically lays out the basic foundation for using these mathematical transformations as design tools. It is intended for architects, designers, and anyone with the curiosity to understand the link between shapes and the equations behind them.

Code as Creative Medium Golan Levin 2021-02-02 An essential guide for teaching and learning computational art and design: exercises, assignments, interviews, and more than 170 illustrations of creative work. This book is an essential resource for art educators and practitioners who want to explore code as a creative medium, and serves as a guide for computer scientists transitioning from STEM to STEAM in their syllabi or practice. It provides a collection of classic creative coding prompts and assignments, accompanied by annotated examples of both classic and contemporary projects, and more than 170 illustrations of creative work, and features a set of interviews with leading educators. Picking up where standard programming guides leave off, the authors highlight alternative programming pedagogies suitable for the art- and design-oriented classroom, including teaching approaches, resources, and community support structures.

Toward a Living Architecture? Christina Cogdell 2019-01-01 A bold and unprecedented look at a cutting-edge movement in architecture Toward a Living Architecture? is the first book-length critique of the emerging field of generative architecture and its nexus with computation, biology, and complexity. Starting from the assertion that we should take generative architects' rhetoric of biology and sustainability seriously, Christina Cogdell examines their claims from the standpoints of the sciences they draw on—complex systems theory, evolutionary theory, genetics and epigenetics, and synthetic biology. She reveals significant disconnects while also pointing to approaches and projects with significant potential for further development. Arguing that architectural design today often only masquerades as sustainable, Cogdell demonstrates how the language of some cutting-edge practitioners and educators can mislead students and clients into thinking they are getting something biological when they are not. In a narrative that moves from the computational toward the

biological and from current practice to visionary futures, Cogdell uses life-cycle analysis as a baseline for parsing the material, energetic, and pollution differences between different digital and biological design and construction approaches. Contrary to green-tech sustainability advocates, she questions whether quartzite-based silicon technologies and their reliance on rare earth metals as currently designed are sustainable for much longer, challenging common projections of a computationally designed and manufactured future. Moreover, in critiquing contemporary architecture and science from a historical vantage point, she reveals the similarities between eugenic design of the 1930s and the aims of some generative architects and engineering synthetic biologists today. Each chapter addresses a current architectural school or program while also exploring a distinct aspect of the corresponding scientific language, theory, or practice. No other book critiques generative architecture by evaluating its scientific rhetoric and disjunction from actual scientific theory and practice. Based on the author's years of field research in architecture studios and biological labs, this rare, field-building book does no less than definitively, unsparingly explain the role of the natural sciences within contemporary architecture.

Generative Design Hartmut Bohnacker 2012-08-22 Generative design is a revolutionary new method of creating artwork, models, and animations from sets of rules, or algorithms. By using accessible programming languages such as Processing, artists and designers are producing extravagant, crystalline structures that can form the basis of anything from patterned textiles and typography to lighting, scientific diagrams, sculptures, films, and even fantastical buildings. Opening with a gallery of thirty-five illustrated case studies, Generative Design takes users through specific, practical instructions on how to create their own visual experiments by combining simple-to-use programming codes with basic design principles. A detailed handbook of advanced strategies provides visual artists with all the tools to achieve proficiency. Both a how-to manual and a showcase for recent work in this exciting new field, Generative Design is the definitive study and reference book that designers have been waiting for.