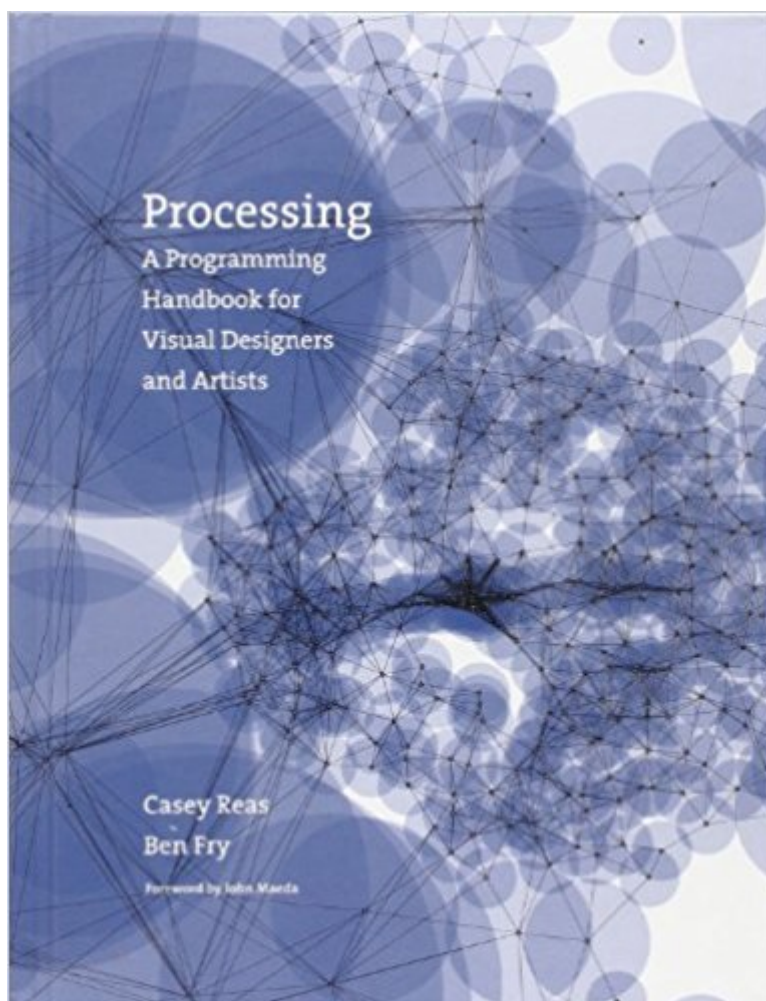


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# Processing: A Programming Handbook For Visual Designers And Artists



## Synopsis

It has been more than twenty years since desktop publishing reinvented design, and it's clear that there is a growing need for designers and artists to learn programming skills to fill the widening gap between their ideas and the capability of their purchased software. This book is an introduction to the concepts of computer programming within the context of the visual arts. It offers a comprehensive reference and text for Processing ([www.processing.org](http://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. The ideas in Processing have been tested in classrooms, workshops, and arts institutions, including UCLA, Carnegie Mellon, New York University, and Harvard University. Tutorial units make up the bulk of the book and introduce the syntax and concepts of software (including variables, functions, and object-oriented programming), cover such topics as photography and drawing in relation to software, and feature many short, prototypical example programs with related images and explanations. More advanced professional projects from such domains as animation, performance, and typography are discussed in interviews with their creators. "Extensions" present concise introductions to further areas of investigation, including computer vision, sound, and electronics. Appendixes, references to additional material, and a glossary contain additional technical details. Processing can be used by reading each unit in order, or by following each category from the beginning of the book to the end. The Processing software and all of the code presented can be downloaded and run for future exploration. Includes essays by Alexander R. Galloway, Golan Levin, R. Luke DuBois, Simon Greenwold, Francis Li, and Hernando Barragán and interviews with Jared Tarbell, Martin Wattenberg, James Paterson, Erik van Blockland, Ed Burton, Josh Ono, Jörg Lehni, Auriea Harvey and Michaël Samyn, Mathew Cullen and Grady Hall, Bob Sabiston, Jennifer Steinkamp, Ruth Jarman and Joseph Gerhardt, Sue Costabile, Chris Csikszentmihályi, Golan Levin and Zachary Lieberman, and Mark Hansen. Casey Reas is Associate Professor in the Design Media Arts Department at the University of California, Los Angeles. Ben Fry is Nierenburg Chair of Design in the School of Design at Carnegie Mellon University, 2006-2007.

## Book Information

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## Customer Reviews

"A whole generation of designers, artists, students, and professors have been influenced by Processing. Now, a handbook is published that goes far beyond explaining how to handle the technology and boldly reveals the potential future for the electronic sketchbook."Joachim Sauter , University of the Arts, Berlin, Founder, Art+Com" Processing, the handbook and tutorial, is an indispensable companion to Processing, the integrated programming language and environment that has developed from phenomenon to revolution. Bridging the gap between programming and visual arts, the Processing handbook, in a concise way, connects software elements to principles of visual form, motion, and interaction. The book's modular structure allows for different combinations of its units and self-directed reading. Interviews with artists who create software-based works and extension chapters that expand software practice into computer vision, sound, and electronics successfully connect the realms of art and technology. Now used by artists, visual designers, and in educational institutions around the world, Processing has been groundbreaking not only as an alternative language for expanding programming space, but as an attempt to nurture programming literacy in the broader context of art and cultural production."Christiane Paul , Adjunct Curator of New Media Arts, Whitney Museum of American Art"Processing is a milestone not only in the history of computer software, of information design, and of the visual arts, but also in social history. Many have commented on the pragmatic impact of the open source movement, but it is time to also consider Processing's sociological and psychological consequences. Processing invites people to tinker, and tinkering is the first step for any scientific and artistic creation. After the tinkering, it leads designers to their idea of perfection. It enables complexity, yet it is approachable; it is rigorous, yet malleable. Its home page exudes the enthusiasm of so many designers and artists from all over the world, overflowing with ideas and proud to be able to share. Processing is a great gift to the world."Paola Antonelli , Curator, Architecture and Design, MOMA"This is an elegant and practical

introduction to programming for artists and designers. It is rigorously grounded, informed by a vast amount of practical experience, and visually compelling. The worked examples are terrific. There's no better starting point for visual artists who want to learn how to think computationally, or for programmers who want to give visual and spatial expression to their ideas." William J. Mitchell , Program in Media Arts and Sciences, MIT" This long-awaited book is more than just a software guide; it is a tool for unlocking a powerful new way of thinking, making, and acting. Not since the Bauhaus have visual artists revisited technology in such a world-changing way. Ben Fry and Casey Reas have helped a growing community of visual producers open up fresh veins of expression. Their work proves that code is open to designers, architects, musicians, and animators, not just to engineers. Providing a powerful alternative to proprietary software, Processing is part of a new social phenomenon in the arts that speaks to self-education and networked engagement." Ellen Lupton , Director of the graphic design MFA program at Maryland Institute College of Art, Baltimore, and author of D.I.Y: Design It Yourself" With Processing, Casey Reas and Ben Fry have opened up the world of programming to artists and designers in a manner that inspires playfulness and creativity with code." Red Burns , Chair and Arts Professor, Interactive Telecommunications Program, Tisch School of the Arts, New York University

Casey Reas is Professor of Design Media Arts at UCLA and coauthor of Processing: A Programming Handbook for Visual Designers and Artists (MIT Press, 2007). Ben Fry is Principal of Fathom, a design and software consultancy in Boston. Together, Reas and Fry cofounded Processing in 2001. An internationally recognized leader at the intersection of design and technology, John Maeda is Design Partner at the venture capital firm Kleiner Perkins Caufield & Byers in Silicon Valley. He served until 2014 as the 16th President of the Rhode Island School of Design (RISD) and before that was Associate Director of the MIT Media Lab. He is a designer, technologist, and catalyst behind the national movement to transform STEM (science, technology, engineering and math) to STEAM with the addition of the arts. He is the author of Design by Numbers (1999), The Laws of Simplicity (2006) and Redesigning Leadership (2011), all published by The MIT Press.

My son decided he wanted to move up from Logo so we introduced him to processing. This book was purchased along with Getting Started with Processing and Processing: Creative Coding and Generative Art. This book was added to our collection specifically because it takes a more academic, detailed and complex approach, attempting to create a more serious introduction to

software development through the lens of processing. For my son, once he was able to fluently move through processing and create wonderful and engaging sketches quickly this became his go to book for deepening his applications and understanding of what is possible. Highly recommended but it is a little more advanced, but don't let that stop you, its so much fun you will rise up to the challenge and be a better processing developer for it!

As a high school physics teacher with a lot of advanced students, I've been trying to work a bit of computer programming into the course over the last few years. I always wanted to do graphics programming with the students in order to help them visualize and simulate systems, because the pictures produced are a lot prettier and more rewarding than just the formulas on their own, but the languages I tried were just too difficult to teach from scratch in the time we had. Processing seems to be just what I'm looking for: it's free so the kids can download it themselves, and it really doesn't take much to produce stunning graphics. Now I would NOT recommend the book to someone with no programming experience at all - the emphasis of the book is clearly (and rightly) on how to get up to speed making images, not on what a variable is. That said, this book is a terrific resource for me; anyone with a basic programming course under their belt ought to have no trouble making sense of Processing's syntax, and the power of the language is phenomenal. The authors have done a fine job of both explaining the use of the Processing language, and showing off what it can do with all the examples. Processing is letting me do what I always wanted to do with a computer - make stunning graphics from mathematical information - at a level high school students can understand. If you are at all interested in Processing, download the free software and go here next.

This book is, quite simply, a godsend. If you are an artist that enjoys tinkering with all things technological (especially an artist that enjoyed mathematics or beating up your computer in high school lab class) than it's certainly for you. If, on the other hand, you are the type of person that hopes to breeze through this and start applying "techie things" to your video art, then you are in for a let-down...it IS a bit tough for someone that has never played with a computer programming language. No way around it, you're going to have to WORK!! But, that's the thing. You're supposed to work, massage, twist, graft, apply, subtract and otherwise mangle these functions and commands until they do some (random, unexpected) beautiful thing. This is exactly what the authors want you to do. Take their simple equations and use your imagination to change them up a bit and make your own. And, a big plus is how the whole book is structured. It starts with simple enough topics and progressively increases in difficulty, BUT, and here is the stroke of genius for artsy types, it does so

by switching the topics here and there from shapes, to type, to math, to random, to trig, to type again, back to shapes...etc. So, you see, it's structured (if you read from cover to cover in a linear fashion) in a way that will NOT bore the reader in any way. It's as if Reas and Fry knew that most of us artsy types were (completely and hopelessly) ADHD and needed this kind of variety to keep our interest (lord knows they probably wish they did, coming from artistic backgrounds before entering MIT as grads). And, as an added bonus, if you are the kind of person that likes the topics all neatly together, there is a second topical index behind the main index so you can jump through the book by topic. In closing, Reas and Fry have done us "new media" types a great service by developing a trimmed-down form of Java programming so that we don't have to do the heavy work and learn full-blown Java or C++ on our own (though, after using this language, the hope is that it WILL get us "artsies" to learn those higher level languages and make genre-smashing art). So, get going! P.S. The only thing I wish this book had were MORE Exercises at the end of each topic. Or, a workbook that had more problems to solve, like my old Calculus text that had 30 problems after each section. Guys, could we, just maybe, extend the problem sets in a future edition, from three to maybe 10? It would be much appreciated! :)

Clear, concise, plenty of example code. Excellent.

Very well written with more explanation on the language than other books I've read. Highly recommended.

This is a great text, from the authors of the software itself. I'm only through the first hundred pages or so, but it's a fairly well-presented volume of information split into easily digested chapters, on everything from the command structure for creating graphics to the math that governs such efforts. The authors cover not only the rationale behind their own programming language, but also touch on the thinking behind digital graphic and artworks as a whole...While the chapters are a little scattered for the linear reader (e.g., certain of the mathematical function chapters are broken and split into chapters that would flow a little better with no break between them), the authors are fairly clear in their intro and table of contents that the text is meant to be read and digested in a variety of ways, linear being only one method. There are a few problems with the explanations of some of the syntax and command structure, but overall, the book is a sound investment for a newby like myself, who hasn't visited programming in a number of years, and needs a primer/refreshers, as well as a source for the more advanced coding artist. I recommend the book without reservation.

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