

Review

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How computers make books: from graphics rendering, search algorithms, and functional programming to indexing and typesetting

Whittington J., O'Reilly Media, Inc., Sebastopol, CA, 2023. 176 pp. Type: Book (9781638354383)

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If we look at the age-old process of creating books, how many different areas can a computer help us with? And how can each of them be used to teach computer science (CS) fundamentals to a nontechnical audience? This is the premise of John Whittington's enticing book and the result is quite amazing.

The book immediately drew my attention when looking at the titles available for review. After all, my initiation into computing as a kid was learning the LaTeX typesetting system while my father worked on his first book on scientific language and typography [1]. Whittington picks 11 different technical aspects of book production, from how dots of ink are transferred to a white page and how they are made into controllable, recognizable shapes, all the way to forming beautiful typefaces and the nuances of properly addressing white-space to present aesthetically pleasing paragraphs, building it all into specific formats aimed at different ends.

But if we dig beyond just the chapter titles, we will find a very interesting book on CS that, without ever using technical language or notation, presents aspects as varied as anti-aliasing, vector and raster images, character sets such as ASCII and Unicode, an introduction to programming, input methods for different writing systems, efficient encoding (compression) methods, both for text and images, lossless and lossy, and recursion and dithering methods. To my absolute surprise, while the author thankfully spared the reader the syntax usually associated with LISP-related languages, the programming examples clearly stem from the LISP school, presenting solutions based on tail recursion. Of course, it is no match for Donald Knuth's classic book on this same topic [2], but could very well be a primer for readers to approach it.

The book is light and easy to read, and keeps a very informal, nontechnical tone throughout. My only complaint relates to reading it in PDF format; the topic of this book, and the care with which the images were provided by the author, warrant high resolution. The included images are not only decorative but an integral part of the book. Maybe this is specific to my review copy, but all of the raster images were in very low resolution.

This book is quite different from what readers may usually expect, as it introduces several significant topics in the field. CS professors will enjoy it, of course, but also readers with a humanities background, students new to the field, or even those who are just interested in learning a bit more.

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- 1) Sánchez y Gándara, A.; Magariños Lamas, F.; Wolf, K. B.; ; ; ; , *Manual de lenguaje y tipografía científica en castellano*. Trillas, Mexico City, Mexico, 1986, <https://www.fis.unam.mx/~bwolf/manual.html>.
- 2) Knuth, D. E. *Digital typography*CSLI Lecture Notes: CSLI Lecture Notes. CSLI Publications, Stanford, CA, 1999, <https://www-cs-faculty.stanford.edu/~knuth/dt.html>.

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