



 Get Print Book

The Universal Computer: The Road from Leibniz to Turing

By Martin Davis



Download



Read Online

The Universal Computer: The Road from Leibniz to Turing By Martin Davis

One of the world's pioneers in the development of computer science offers a mesmerizing history of computers.

Computers are everywhere today--at work, in the bank, in artist's studios, sometimes even in our pockets--yet they remain to many of us objects of irreducible mystery. How can today's computers perform such a bewildering variety of tasks if computing is just glorified arithmetic? The answer, as Martin Davis lucidly illustrates, lies in the fact that computers are essentially engines of logic. Their hardware and software embody concepts developed over centuries by logicians such as Leibniz, Boole, and Godel, culminating in the amazing insights of Alan Turing. *The Universal Computer* traces the development of these concepts by exploring with captivating detail the lives and work of the geniuses who first formulated them. Readers will come away with a revelatory understanding of how and why computers work and how the algorithms within them came to be.



[Download The Universal Computer: The Road from Leibniz to T ...pdf](#)



[Read Online The Universal Computer: The Road from Leibniz to ...pdf](#)

The Universal Computer: The Road from Leibniz to Turing

By Martin Davis

The Universal Computer: The Road from Leibniz to Turing By Martin Davis

One of the world's pioneers in the development of computer science offers a mesmerizing history of computers.

Computers are everywhere today--at work, in the bank, in artist's studios, sometimes even in our pockets--yet they remain to many of us objects of irreducible mystery. How can today's computers perform such a bewildering variety of tasks if computing is just glorified arithmetic? The answer, as Martin Davis lucidly illustrates, lies in the fact that computers are essentially engines of logic. Their hardware and software embody concepts developed over centuries by logicians such as Leibniz, Boole, and Godel, culminating in the amazing insights of Alan Turing. *The Universal Computer* traces the development of these concepts by exploring with captivating detail the lives and work of the geniuses who first formulated them. Readers will come away with a revelatory understanding of how and why computers work and how the algorithms within them came to be.

The Universal Computer: The Road from Leibniz to Turing By Martin Davis Bibliography

- Sales Rank: #1154505 in Books
- Published on: 2000-10
- Original language: English
- Number of items: 1
- Dimensions: 9.50" h x 1.00" w x 6.40" l, 1.26 pounds
- Binding: Hardcover
- 256 pages

 [Download The Universal Computer: The Road from Leibniz to T ...pdf](#)

 [Read Online The Universal Computer: The Road from Leibniz to ...pdf](#)

Download and Read Free Online The Universal Computer: The Road from Leibniz to Turing By Martin Davis

Editorial Review

Amazon.com Review

Computers rely on such things as semiconductors, memory chips, and electricity. But they also rely on a hard-won body of scientific knowledge that has enabled the now-ubiquitous devices to perform complex calculations, multitask, and even play a game of solitaire.

Martin Davis, a fluent interpreter of mathematics and philosophy, locates the source of this knowledge in the work of the remarkable German thinker G. W. Leibniz, who, among other accomplishments, was a distinguished jurist, mining engineer, and diplomat but found time to invent a contraption called the "Leibniz wheel," a sort of calculator that could carry out the four basic operations of arithmetic. Leibniz subsequently developed a method of calculation called the calculus ratiocinator, an innovation his successor George Boole extended by, in Davis's words, "turning logic into algebra." (Boole emerges as a deeply sympathetic character in Davis's pages, rather than as the dry-as-dust figure of other histories. He explained, Davis reports, that he had turned to mathematics because he had so little money as a student to buy books, and mathematics books provided more value for the money because they took so long to work through.) Davis traces the development of this logic, essential to the advent of "thinking machines," through the workshops and studies of such thinkers as Georg Cantor, Kurt Gödel, and Alan Turing, each of whom puzzled out just a little bit more of the workings of the world--and who, in the bargain, made the present possible. --*Gregory McNamee*

From Publishers Weekly

This thoroughly enjoyable mix of biographical portraits and theoretical mathematics reveals how a sequence of logicians posed the conceptual questions and contributed the crucial insights resulting in the development of computers long before the technology was available to build even the simplest machines. An intriguing portrait of the great 17th-century mathematician G.W. Leibniz, a pivotal figure in the history of the search for human knowledge, launches this account by New York University professor emeritus Davis (Computability and Unsolvability). Steeped in Aristotelian ideas of perfection but trained in modern engineering, Leibniz conceived the idea of a universal system for determining truth. His contributions to this system are as diverse as the ingenious Leibniz Wheel (an early calculating machine) and the notation used today for calculus. His ideas, in particular, his recognition of the deep connection between systems of notation and actual physical devices for performing computation, inspired mathematicians and logicians, including George Boole, Gottlob Frege, Georg Cantor, David Hilbert and Kurt Gödel, until Alan Turing used them to develop the powerful mathematical tools that underlie modern computers as well as some of the earliest computer prototypes. After Leibniz, people thought about the problem of building computational systems; after Turing, people got busy building the machines. Davis has told the fascinating story in between. Full of well-honed anecdotes and telling detail, the book reads like a masterful lecture. Presenting key mathematical ideas in moderate depth, it also offers a solid introduction to the field of computer science that will captivate motivated readers. Agent, Alex Hoyt.

Copyright 2000 Reed Business Information, Inc.

From Scientific American

"As computers have evolved from the room-filling behemoths that were the computers of the 1950s to the small powerful machines of today that perform a bewildering variety of tasks, their underlying logic has remained the same," Davis says. "These logical concepts have developed out of the work of a number of gifted thinkers over a period of centuries. In this book I tell the story of the lives of these people and explain

some of their thought." Davis, professor emeritus of mathematics at New York University, has devoted his career to "this relationship between the abstract logical concepts underlying modern computers and their physical realization." His tale encompasses seven mathematicians who contributed to that relationship: Gottfried Leibniz, George Boole, Gottlob Frege, Georg Cantor, David Hilbert, Kurt Gödel and Alan Turing. Leibniz, one reads, dreamed of "machines capable of carrying out calculations." Boole put forward an algebra of logic. And on to Turing, who envisioned a "universal machine" that could play games like chess, be induced to learn much as a child does and ultimately "could be made to exhibit behavior one would be led to call intelligent." Davis believes that the story he tells "underscores the power of ideas and the futility of predicting where they will lead."

EDITORS OF SCIENTIFIC AMERICAN

Users Review

From reader reviews:

Barbara Richardson:

What do you in relation to book? It is not important along? Or just adding material when you really need something to explain what you problem? How about your extra time? Or are you busy person? If you don't have spare time to complete others business, it is make you feel bored faster. And you have spare time? What did you do? Everyone has many questions above. They need to answer that question mainly because just their can do that will. It said that about book. Book is familiar on every person. Yes, it is suitable. Because start from on pre-school until university need this specific The Universal Computer: The Road from Leibniz to Turing to read.

Brett Nash:

Do you one among people who can't read enjoyable if the sentence chained inside the straightway, hold on guys this aren't like that. This The Universal Computer: The Road from Leibniz to Turing book is readable by means of you who hate the straight word style. You will find the information here are arrange for enjoyable looking at experience without leaving perhaps decrease the knowledge that want to provide to you. The writer connected with The Universal Computer: The Road from Leibniz to Turing content conveys objective easily to understand by lots of people. The printed and e-book are not different in the content but it just different by means of it. So , do you nevertheless thinking The Universal Computer: The Road from Leibniz to Turing is not loveable to be your top collection reading book?

Diane Welton:

Hey guys, do you would like to finds a new book to study? May be the book with the title The Universal Computer: The Road from Leibniz to Turing suitable to you? The actual book was written by famous writer in this era. Typically the book untitled The Universal Computer: The Road from Leibniz to Turing is the main one of several books which everyone read now. That book was inspired a lot of people in the world. When you read this reserve you will enter the new dimensions that you ever know just before. The author explained their strategy in the simple way, thus all of people can easily to recognise the core of this guide. This book will give you a wide range of information about this world now. To help you to see the represented of the world within this book.

Catherine Graziani:

Don't be worry should you be afraid that this book may filled the space in your house, you can have it in e-book method, more simple and reachable. This particular The Universal Computer: The Road from Leibniz to Turing can give you a lot of good friends because by you investigating this one book you have thing that they don't and make anyone more like an interesting person. This kind of book can be one of one step for you to get success. This guide offer you information that possibly your friend doesn't know, by knowing more than additional make you to be great men and women. So , why hesitate? Let us have The Universal Computer: The Road from Leibniz to Turing.

Download and Read Online The Universal Computer: The Road from Leibniz to Turing By Martin Davis #K VW15FAL6GY

Read The Universal Computer: The Road from Leibniz to Turing By Martin Davis for online ebook

The Universal Computer: The Road from Leibniz to Turing By Martin Davis Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read The Universal Computer: The Road from Leibniz to Turing By Martin Davis books to read online.

Online The Universal Computer: The Road from Leibniz to Turing By Martin Davis ebook PDF download

The Universal Computer: The Road from Leibniz to Turing By Martin Davis Doc

The Universal Computer: The Road from Leibniz to Turing By Martin Davis Mobipocket

The Universal Computer: The Road from Leibniz to Turing By Martin Davis EPub