

A Brief History Of Computing

This revised edition of the popular reference and textbook outlines the historical developments in computing technology. It explains and describes historical aspects of calculation with an emphasis on the physical devices used in different times to aid people in their attempts at automating the process of arithmetic.

History of Programming Languages presents information pertinent to the technical aspects of the language design and creation. This book provides an understanding of the processes of language design as related to the environment in which languages are developed and the knowledge base available to the originators. Organized into 14 sections encompassing 77 chapters, this book begins with an overview of the programming techniques to use to help the system produce efficient programs. This text then discusses how to use parentheses to help the system identify identical subexpressions within an expression and thereby eliminate their duplicate calculation. Other chapters consider FORTRAN programming techniques needed to produce optimum object programs. This book discusses as well the developments leading to ALGOL 60. The final chapter presents the biography of Adin D. Falkoff. This book is a valuable resource for graduate students, practitioners, historians, statisticians, mathematicians, programmers, as well as computer scientists and specialists.

Hundreds of millions of people use social technologies like Wikipedia, Facebook and YouTube

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every day, but what makes them work? And what is the next step? The Social Design of Technical Systems explores the path from computing revolution to social evolution. Based on the assumption that it is essential to consider social as well as technological requirements, as we move to create the systems of the future, this book explores the ways in which technology fits, or fails to fit, into the social reality of the modern world. Important performance criteria for social systems, such as fairness, synergy, transparency, order and freedom, are clearly explained for the first time from within a comprehensive systems framework, making this book invaluable for anyone interested in socio-technical systems, especially those planning to build social software. This book reveals the social dilemmas that destroy communities, exposes the myth that computers are smart, analyses social errors like the credit meltdown, proposes online rights standards and suggests community-based business models. If you believe that our future depends on merging social virtue and technology power, you should read this book.

First published in France in 1994.

The History of the Computer

Computer

A History of Computing Technology

Histories of Computing

A Concise History

Computer. Illustrierte Geschie

Presents the history of the invention of computers,

describing the collaboration of John von Neumann

and his colleagues as they worked together to create

the first computer, an event which led to the hydrogen bomb and the birth of the digital age.

This work derives from a conference discussing the history of computing in education. This conference is the first of hopefully a series of conferences that will take place within the International Federation for Information Processing (IFIP) and hence, we describe it as the First Conference on the History of Computing in Education (HCE1). These proceedings represent a collection of works presented at the HCE1 Conference held in association with the IFIP 2004 World Computer Congress held in Toulouse, France. Contributions to this volume range from a wide variety of educational perspectives and represent activities from four continents. The HCE1 conference represents a joint effort of the IFIP Working Group 9.7 on the History of Computing and the IFIP Technical Committee 3 on Education. The HCE1 Conference brings to light a broad spectrum of issues and spans four continents. It illustrates topics in computing education as they occurred in the “early days” of computing whose ramifications or overtones remain with us today. Indeed, many of the early challenges remain part of our educational tapestry; most likely, many will evolve into future challenges. Therefore, this work provides additional value to the reader as it will reflect in part the future development of computing in education to stimulate new ideas and models in educational development.

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The history of the first programmable electronic computer, from its conception, construction, and use to its afterlife as a part of computing folklore.

This major reference work represents the first attempt to confront, on a world-wide basis, the way computer associations face up to their own responsibilities in an age increasingly dominated by information and communication technology. The book deals with the codes of ethics and conduct, and related issues. It is the first book to deal with homogenous codes namely codes of national computer societies. Some thirty codes are compared and analysed in depth. To put these into perspective, there are discussion papers covering the methodological, philosophical and organisational issues.

The Social Design of Technical Systems

Computer Science and Society in the ACM

The Physics of Computing

The Universal History of Computing

A People's History of Computing in the United States

Communities of Computing

This bibliography provides a general introduction to the literature of the data processing industry, covering a broad range of technologies that stretch back to the pre-history of information processing. Grouped into nine chapters and under nearly 100 subheadings, the materials surveyed include both recent and historical publications, as well as ongoing current publications such as computer magazines. Each chapter contains a short review of historically important issues and

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comments on the literature, and an annotation for each entry. This lively and fascinating text traces the key developments in computation – from 3000 B.C. to the present day – in an easy-to-follow and concise manner. Topics and features: ideal for self-study, offering many pedagogical features such as chapter-opening key topics, chapter introductions and summaries, exercises, and a glossary; presents detailed information on major figures in computing, such as Boole, Babbage, Shannon, Turing, Zuse and Von Neumann; reviews the history of software engineering and of programming languages, including syntax and semantics; discusses the progress of artificial intelligence, with extension to such key disciplines as philosophy, psychology, linguistics, neural networks and cybernetics; examines the impact on society of the introduction of the personal computer, the World Wide Web, and the development of mobile phone technology; follows the evolution of a number of major technology companies, including IBM, Microsoft and Apple.

A Brief History of Computing Springer Science & Business Media

How the computer became universal. Over the past fifty years, the computer has been transformed from a hulking scientific supertool and data processing workhorse, remote from the experiences of ordinary people, to a diverse family of devices that billions rely on to play games, shop, stream music and movies, communicate, and count their steps. In *A New History of Modern Computing*, Thomas Haigh and Paul Ceruzzi trace these changes. A comprehensive reimagining of Ceruzzi's *A History of Modern Computing*, this new volume uses each chapter to recount one such transformation, describing how a particular community of users and producers remade the

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computer into something new. Haigh and Ceruzzi ground their accounts of these computing revolutions in the longer and deeper history of computing technology. They begin with the story of the 1945 ENIAC computer, which introduced the vocabulary of "programs" and "programming," and proceed through email, pocket calculators, personal computers, the World Wide Web, videogames, smart phones, and our current world of computers everywhere--in phones, cars, appliances, watches, and more. Finally, they consider the Tesla Model S as an object that simultaneously embodies many strands of computing.

The Rise and Fall and Reinvention of a Global Icon

Codes, spaces for discussion and law

History of Programming Languages

Reflections on the History of Computers in Education

Introduction to the History of Computing

A Practical Guide to Data Presentation, Analysis and the Internet

The computer as calculating aide, as military wonder weapon, as electronic data processor that rationalises workplaces, as plaything & partner, as the tool for creativity & communication, as a memory & intelligence booster, & finally as a super- or hyper-medium - the computer has been accorded all of these roles & claims during its brief history. Its potential as a universally configurable machine & tool for other tools appears unfathomable. Yet precisely this versatility & the enormous variety of its allotted tasks & functions emphasise the necessity of tapping them & being using them purposefully & effectively, which makes ease of use the key criterion of a computer. The interface

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between the computer & the human being is not simply a kind of space, surface or point for interacting with the computer, but also the locus where the two historical dimensions of its usage, programming & applications, grew closer & closer until they finally merged. This publication will be the first book ever to tackle the history of this interface - from the perspective of both the computer & the design. A detailed text & a wealth of illustrations forge the appropriate link between art & technology. The work can be used as a scientific reference book, but equally enjoyed as a book on design & photography, & its layout & structure will do justice to both these purposes. With its approximately one thousand illustrations, the book not only describes the constantly altering concepts & situations for that determine computer use; it also serves as a precise & vivid record of people's continuously changing surroundings in their working & private lives, whilst simultaneously highlighting the design, fashion & photography of their times...

The Physics of Computing gives a foundational view of the physical principles underlying computers.

Performance, power, thermal behavior, and reliability are all harder and harder to achieve as transistors shrink to nanometer scales. This book describes the physics of computing at all levels of abstraction from single gates to complete computer systems. It can be used as a course for juniors or seniors in computer engineering and electrical engineering, and can also be used to teach students in other scientific disciplines important concepts in computing. For electrical engineering, the

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book provides the fundamentals of computing that link core concepts to computing. For computer science, it provides foundations of key challenges such as power consumption, performance, and thermal. The book can also be used as a technical reference by professionals. Links fundamental physics to the key challenges in computer design, including memory wall, power wall, reliability Provides all of the background necessary to understand the physical underpinnings of key computing concepts Covers all the major physical phenomena in computing from transistors to systems, including logic, interconnect, memory, clocking, I/O How Britain lost its early dominance in computing by systematically discriminating against its most qualified workers: women. In 1944, Britain led the world in electronic computing. By 1974, the British computer industry was all but extinct. What happened in the intervening thirty years holds lessons for all postindustrial superpowers. As Britain struggled to use technology to retain its global power, the nation's inability to manage its technical labor force hobbled its transition into the information age. In Programmed Inequality, Mar Hicks explores the story of labor feminization and gendered technocracy that undercut British efforts to computerize. That failure sprang from the government's systematic neglect of its largest trained technical workforce simply because they were women. Women were a hidden engine of growth in high technology from World War II to the 1960s. As computing experienced a gender flip, becoming male-identified in the 1960s and 1970s, labor problems grew

into structural ones and gender discrimination caused the nation's largest computer user—the civil service and sprawling public sector—to make decisions that were disastrous for the British computer industry and the nation as a whole. Drawing on recently opened government files, personal interviews, and the archives of major British computer companies, *Programmed Inequality* takes aim at the fiction of technological meritocracy. Hicks explains why, even today, possessing technical skill is not enough to ensure that women will rise to the top in science and technology fields. *Programmed Inequality* shows how the disappearance of women from the field had grave macroeconomic consequences for Britain, and why the United States risks repeating those errors in the twenty-first century.

The evolution of the multi-billion-dollar computer services industry, from consulting and programming to data analytics and cloud computing, with case studies of important companies. The computer services industry has worldwide annual revenues of nearly a trillion dollars and employs millions of workers, but is often overshadowed by the hardware and software products industries. In this book, Jeffrey Yost shows how computer services, from consulting and programming to data analytics and cloud computing, have played a crucial role in shaping information technology—in making IT work. Tracing the evolution of the computer services industry from the 1950s to the present, Yost provides case studies of important companies (including IBM, Hewlett Packard,

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Andersen/Accenture, EDS, Infosys, and others) and profiles of such influential leaders as John Diebold, Ross Perot, and Virginia Rometty. He offers a fundamental reinterpretation of IBM as a supplier of computer services rather than just a producer of hardware, exploring how IBM bundled services with hardware for many years before becoming service-centered in the 1990s. Yost describes the emergence of companies that offered consulting services, data processing, programming, and systems integration. He examines the development of industry-defining trade associations; facilities management and the firm that invented it, Ross Perot's EDS; time sharing, a precursor of the cloud; IBM's early computer services; and independent contractor brokerages. Finally, he explores developments since the 1980s: the transformations of IBM and Hewlett Packard; the offshoring of enterprises and labor; major Indian IT service providers and the changing geographical deployment of U.S.-based companies; and the paradigm-changing phenomenon of cloud service.

A Computing History Primer

History of Computing in Education

A People ' s History of Computing in the United States

A New History of Modern Computing

Making and Remaking the Modern Computer

Ethics of Computing

Tracing the story of computing from Babylonian counting boards to smartphones, this inspiring textbook provides a concise overview of the key events in the history of computing, together with

discussion exercises to stimulate deeper investigation into this fascinating area. Features: provides chapter introductions, summaries, key topics, and review questions; includes an introduction to analogue and digital computers, and to the foundations of computing; examines the contributions of ancient civilisations to the field of computing; covers the first digital computers, and the earliest commercial computers, mainframes and minicomputers; describes the early development of the integrated circuit and the microprocessor; reviews the emergence of home computers; discusses the creation of the Internet, the invention of the smartphone, and the rise of social media; presents a short history of telecommunications, programming languages, operating systems, software engineering, artificial intelligence, and databases.

This title gives students an integrated and rigorous picture of applied computer science, as it comes to play in the construction of a simple yet powerful computer system.

The book aims at the general reader or student with some general mathematical background knowledge and some experience with computers who needs a short offline encyclopedia. This book also examines the evolution of programming languages and the history of software engineering, in addition to such revolutions in computing as the invention of the

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World Wide Web. This clearly written and broad-ranging text both gives the reader a flavour of the history and stimulates further study in the subject. As such, it will be of great benefit to students of computer science, while also capturing the interest of the more casual reader.

History of Computing: Learning from the Past Why is the history of computing important? Given that the computer, as we now know it, came into existence less than 70 years ago it might seem a little odd to some people that we are concerned with its history. Isn't history about 'old things'? Computing, of course, goes back much further than 70 years with many earlier - vices rightly being known as computers, and their history is, of course, important. It is only the history of electronic digital computers that is relatively recent. History is often justified by use of a quote from George Santayana who famously said that: 'Those who cannot remember the past are condemned to repeat it'. It is arguable whether there are particular mistakes in the history of computing that we should avoid in the future, but there is some circularity in this question, as the only way we will know the answer to this is to study our history. This book contains papers on a wide range of topics relating to the history of computing, written both by historians and also by those who were involved in creating this history. The papers are the result of an international conference on the History of

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Computing that was held as a part of the IFIP World Computer Congress in Brisbane in September 2010.

Turing's Cathedral

How Britain Discarded Women Technologists and Lost Its Edge in Computing

A Brief History of Computing

A History of Modern Computing, second edition

IFIP WG 9.7 International Conference, HC 2010,

Held as Part of WCC 2010, Brisbane, Australia,

September 20-23, 2010, Proceedings

Computing

History of Computing in the Twentieth Century

Does Silicon Valley deserve all the credit for digital creativity and social media? Joy Rankin questions this triumphalism by revisiting a pre-PC time when schools were not the last stop for mature consumer technologies but flourishing sites of innovative collaboration--when users taught computers and visionaries dreamed of networked access for all.

A compact and accessible history, from punch cards and calculators to UNIVAC and ENIAC, the personal computer, Silicon Valley, and the Internet. The history of computing could be told as the story of hardware and software, or the story of the Internet, or the story of "smart" hand-held devices, with subplots involving IBM, Microsoft, Apple, Facebook, and Twitter. In this concise and accessible account of the invention and development of digital technology, computer

historian Paul Ceruzzi offers a broader and more useful perspective. He identifies four major threads that run throughout all of computing's technological development: digitization—the coding of information, computation, and control in binary form, ones and zeros; the convergence of multiple streams of techniques, devices, and machines, yielding more than the sum of their parts; the steady advance of electronic technology, as characterized famously by “Moore's Law”; and the human-machine interface. Ceruzzi guides us through computing history, telling how a Bell Labs mathematician coined the word “digital” in 1942 (to describe a high-speed method of calculating used in anti-aircraft devices), and recounting the development of the punch card (for use in the 1890 U.S. Census). He describes the ENIAC, built for scientific and military applications; the UNIVAC, the first general purpose computer; and ARPANET, the Internet's precursor. Ceruzzi's account traces the world-changing evolution of the computer from a room-size ensemble of machinery to a “minicomputer” to a desktop computer to a pocket-sized smart phone. He describes the development of the silicon chip, which could store ever-increasing amounts of data and enabled ever-decreasing device size. He visits that hotbed of innovation, Silicon Valley, and brings the story up to the present with the Internet, the World Wide Web, and social networking. A new framework for understanding computing:

a coherent set of principles spanning technologies, domains, algorithms, architectures, and designs. Computing is usually viewed as a technology field that advances at the breakneck speed of Moore's Law. If we turn away even for a moment, we might miss a game-changing technological breakthrough or an earthshaking theoretical development. This book takes a different perspective, presenting computing as a science governed by fundamental principles that span all technologies. Computer science is a science of information processes. We need a new language to describe the science, and in this book Peter Denning and Craig Martell offer the great principles framework as just such a language. This is a book about the whole of computing—its algorithms, architectures, and designs. Denning and Martell divide the great principles of computing into six categories: communication, computation, coordination, recollection, evaluation, and design. They begin with an introduction to computing, its history, its many interactions with other fields, its domains of practice, and the structure of the great principles framework. They go on to examine the great principles in different areas: information, machines, programming, computation, memory, parallelism, queueing, and design. Finally, they apply the great principles to networking, the Internet in particular. Great Principles of Computing will be essential reading for professionals

in science and engineering fields with a “computational” branch, for practitioners in computing who want overviews of less familiar areas of computer science, and for non-computer science majors who want an accessible entry way to the field.

A History of the Computer Services Industry

The First Computers

John von Neumann and the Origins of Modern Computing

ENIAC in Action

**IFIP 18th World Computer Congress, TC3 / TC9
1st Conference on the History of Computing in
Education 22–27 August 2004 Toulouse, France**

The very first electronic computers were invented at the end of World War II. They were very large machines that could only be used in special air conditioned rooms. Today, almost everybody carries a computer in their pocket, in their mobile phone. How did all this come about in only 70 years? This book is for people who would like to know the answer to this question. It tells this exciting story, with a lot of pictures. This book is not a complete history, rather it is a concise history that covers the most important people, companies and inventions that led to where we are today. The first chapter covers the evolution of computer hardware - the physical machine. The second chapter

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focuses on the software - the programs that provide the instructions that tell the hardware what to do. The third chapter covers the most important data networks that were developed so that computers could communicate with each other, ending with the Internet which only became the dominant computer network after 1995. The last chapter on Smartphones traces its history from the discovery of radio waves in the late 19th century to the Apple iPhone. This book does not require a lot of technical knowledge about computers. People who are interested in learning more about how computers actually work can read the companion book "Understanding Computers, Smartphones and the Internet", by Ernie Dainow.

The history of computing has its origins at the outset of civilization, and the need for increasingly sophisticated calculations has grown as towns and communities evolved. This expanded and revised book also examines the evolution of programming languages and the history of software engineering, in addition to such revolutions in computing as the invention of the World Wide Web. The book aims at the general reader or student with some general mathematical background knowledge and some experience with

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computers who needs a short offline encyclopedia.

Communities of Computing is the first book-length history of the Association for Computing Machinery (ACM), founded in 1947 and with a membership today of 100,000 worldwide. It profiles ACM's notable SIGs, active chapters, and individual members, setting ACM's history into a rich social and political context. The book's 12 core chapters are organized into three thematic sections. "Defining the Discipline" examines the 1960s and 1970s when the field of computer science was taking form at the National Science Foundation, Stanford University, and through ACM's notable efforts in education and curriculum standards. "Broadening the Profession" looks outward into the wider society as ACM engaged with social and political issues - and as members struggled with balancing a focus on scientific issues and awareness of the wider world. Chapters examine the social turbulence surrounding the Vietnam War, debates about the women's movement, efforts for computing and community education, and international issues including professionalization and the Cold War. "Expanding Research Frontiers" profiles three areas of research activity

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where ACM members and ACM itself shaped notable advances in computing, including computer graphics, computer security, and hypertext. Featuring insightful profiles of notable ACM leaders, such as Edmund Berkeley, George Forsythe, Jean Sammet, Peter Denning, and Kelly Gotlieb, and honest assessments of controversial episodes, the volume deals with compelling and complex issues involving ACM and computing. It is not a narrow organizational history of ACM committees and SIGS, although much information about them is given. All chapters are original works of research. Many chapters draw on archival records of ACM's headquarters, ACM SIGs, and ACM leaders. This volume makes a permanent contribution to documenting the history of ACM and understanding its central role in the history of computing.

This history of computing focuses not on chronology (what came first and who deserves credit for it) but on the actual architectures of the first machines that made electronic computing a practical reality. The book covers computers built in the United States, Germany, England, and Japan. It makes clear that similar concepts were often pursued simultaneously and that the early researchers explored

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many architectures beyond the von Neumann architecture that eventually became canonical. The contributors include not only historians but also engineers and computer pioneers. An introductory chapter describes the elements of computer architecture and explains why "being first" is even less interesting for computers than for other areas of technology. The essays contain a remarkable amount of new material, even on well-known machines, and several describe reconstructions of the historic machines. These investigations are of more than simply historical interest, for architectures designed to solve specific problems in the past may suggest new approaches to similar problems in today's machines. Contributors Titiimaea F. Ala'ilima, Lin Ping Ang, William Aspray, Friedrich L. Bauer, Andreas Brennecke, Chris P. Burton, Martin Campbell-Kelly, Paul Ceruzzi, I. Bernard Cohen, John Gustafson, Wilhelm Hopmann, Harry D. Huskey, Friedrich W. Kistermann, Thomas Lange, Michael S. Mahoney, R. B. E. Napper, Seiichi Okoma, Hartmut Petzold, Raúl Rojas, Anthony E. Sale, Robert W. Seidel, Ambros P. Speiser, Frank H. Sumner, James F. Tau, Jan Van der Spiegel, Eiiti Wada, Michael R. Williams

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The Origins of the Digital Universe

Building a Modern Computer from First Principles

History of Computing: Learning from the Past

Programmed Inequality

Milestones in Analog and Digital Computing

Great Principles of Computing

A history of one of the most influential American companies of the last century. For decades, IBM shaped the way the world did business. IBM products were in every large organization, and IBM corporate culture established a management style that was imitated by companies around the globe. It was “Big Blue,” an icon. And yet over the years, IBM has gone through both failure and success, surviving flatlining revenue and forced reinvention. The company almost went out of business in the early 1990s, then came back strong with new business strategies and an emphasis on artificial intelligence. In this authoritative, monumental history, James Cortada tells the story of one of the most influential American companies of the last century. Cortada, a historian who worked at IBM for many years, describes IBM's technology breakthroughs, including the development of the punch card (used for automatic tabulation in the 1890 census), the calculation and printing of the first Social Security checks in the 1930s, the introduction of the PC to a mass audience in the 1980s, and the company's shift in focus from hardware to software. He discusses IBM's business culture and its orientation toward employees and customers; its global expansion; regulatory and legal

issues, including antitrust litigation; and the track records of its CEOs. The secret to IBM's unequalled longevity in the information technology market, Cortada shows, is its capacity to adapt to changing circumstances and technologies.

Does Silicon Valley deserve all the credit for digital creativity and social media? Joy Rankin questions this triumphalism by revisiting a pre-PC time when schools were not the last stop for mature consumer technologies but flourishing sites of innovative collaboration—when users taught computers and visionaries dreamed of networked access for all.

This book is a collection of refereed invited papers on the history of computing in education from the 1970s to the mid-1990s presenting a social history of the introduction and early use of computers in schools.

The 30 papers deal with the introduction of computer in schools in many countries around the world:

Norway, South Africa, UK, Canada, Australia, USA, Finland, Chile, The Netherlands, New Zealand, Spain, Ireland, Israel and Poland. The authors are not

professional historians but rather people who as teachers, students or researchers were involved in this history and they narrate their experiences from a personal perspective offering fascinating stories.

A strikingly illustrated overview of the computing machines that have changed our world—from the abacus to the smartphone—and the people who made them, by the New York Times bestselling author and illustrator of *Women in Science*. “A beautifully illustrated journey through the history of computing, from the Antikythera mechanism to the iPhone and beyond—I loved it.”—Eben Upton, Founder and CEO of Raspberry Pi

Computers are everywhere and have

impacted our lives in so many ways. But who created them, and why? How have they transformed the way that we interact with our surroundings and each other? Packed with accessible information, fun facts, and discussion starters, this charming and art-filled book takes you from the ancient world to the modern day, focusing on important inventions, from the earliest known counting systems to the sophisticated algorithms behind AI. The History of the Computer also profiles a diverse range of key players and creators—from An Wang and Margaret Hamilton to Steve Jobs and Sir Tim Berners-Lee—and illuminates their goals, their intentions, and the impact of their inventions on our everyday lives. This entertaining and educational journey will help you understand our most important machines and how we can use them to enhance the way we live. You'll never look at your phone the same way again!

The Universal History of Numbers

Early Use of Computers and Teaching about Computing in Schools

A Bibliographic Guide to the History of Computing, Computers, and the Information Processing Industry

From the Abacus to the Quantum Computer

Making IT Work

History and Architectures

Traces computing from the development of the abacus, through the invention of the binary system, the introduction of mechanical and electronic computers, and projections of quantum computers.

Computer technology is pervasive in the modern world, its role ever more important as it becomes embedded in a myriad of physical systems and

disciplinary ways of thinking. The late Michael Sean Mahoney was a pioneer scholar of the history of computing, one of the first established historians of science to take seriously the challenges and opportunities posed by information technology to our understanding of the twentieth century. Mahoney's work ranged widely, from logic and the theory of computation to the development of software and applications as craft-work. But it was always informed by a unique perspective derived from his distinguished work on the history of medieval mathematics and experimental practice during the Scientific Revolution. His writings offered a new angle on very recent events and ideas and bridged the gaps between academic historians and computer scientists. Indeed, he came to believe that the field was irreducibly pluralistic and that there could be only histories of computing. In this collection, Thomas Haigh presents thirteen of Mahoney's essays and papers organized across three categories: historiography, software engineering, and theoretical computer science. His introduction surveys Mahoney's work to trace the development of key themes, illuminate connections among different areas of his research, and put his contributions into context. The volume also includes an essay on Mahoney by his former students Jed Z. Buchwald and D. Graham Burnett. The result is a landmark work, of interest to computer professionals as well as historians of technology and science. This Third Edition is the first English-language

edition of the award-winning Meilensteine der Rechentechnik; illustrated in full color throughout in two volumes. The Third Edition is devoted to both analog and digital computing devices, as well as the world's most magnificent historical automatons and select scientific instruments (employed in astronomy, surveying, time measurement, etc.). It also features detailed instructions for analog and digital mechanical calculating machines and instruments, and is the only such historical book with comprehensive technical glossaries of terms not found in print or in online dictionaries. The book also includes a very extensive bibliography based on the literature of numerous countries around the world. Meticulously researched, the author conducted a worldwide survey of science, technology and art museums with their main holdings of analog and digital calculating and computing machines and devices, historical automatons and selected scientific instruments in order to describe a broad range of masterful technical achievements. Also covering the history of mathematics and computer science, this work documents the cultural heritage of technology as well.

Using Computers in History is designed to introduce students to historical computing through practical workshop exercises. With topics such as the pattern of nineteenth century emigration from the UK, the performance of the American and German economies in the 1930s and the Lancashire cotton

industry, Lloyd-Jones and Lewis explain and illustrate the possible uses of the computer for the historian. Using Computers in History: * raises awareness of the use of computers as an important tool for the historian * provides a practical introduction to basic computer terminology * includes high quality diagrams of the screen displays which should appear at each stage * examines the use of spreadsheets and how to design and work with them * discusses the different software packages available, concentrating on Microsoft Excel 4 * includes spreadsheet exercises based around a range of historical data sets * explores the use of databases * shows how to construct them * gives guidelines for further study * prompts students to apply the skills they have learnt to a number of examples

History of Computing in the Twentieth Century Building Technologies for Communities. 2nd Edition People, Inventions, and Technology that Changed Our World

The Elements of Computing Systems

IBM

The Computer and the Information Revolution

William Aspray provides the first broad and detailed account of von Neumann's many different contributions to computing. John von Neumann (1903-1957) was unquestionably one of the most brilliant scientists of the twentieth century. He made major contributions to quantum mechanics and mathematical physics and in 1943 began a new and all-too-short career in computer

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science. William Aspray provides the first broad and detailed account of von Neumann's many different contributions to computing. These, Aspray reveals, extended far beyond his well-known work in the design and construction of computer systems to include important scientific applications, the revival of numerical analysis, and the creation of a theory of computing. Aspray points out that from the beginning von Neumann took a wider and more theoretical view than other computer pioneers. In the now famous EDVAC report of 1945, von Neumann clearly stated the idea of a stored program that resides in the computer's memory along with the data it was to operate on. This stored program computer was described in terms of idealized neurons, highlighting the analogy between the digital computer and the human brain. Aspray describes von Neumann's development during the next decade, and almost entirely alone, of a theory of complicated information processing systems, or automata, and the introduction of themes such as learning, reliability of systems with unreliable components, self-replication, and the importance of memory and storage capacity in biological nervous systems; many of these themes remain at the heart of current investigations in parallel or neurocomputing. Aspray allows the record to speak for itself. He unravels an intricate sequence of stories generated by von Neumann's work and brings into focus the interplay of personalities centered about von Neumann. He documents the complex interactions of science, the military, and business and shows how

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progress in applied mathematics was intertwined with that in computers. William Aspray is Director of the Center for the History of Electrical Engineering at The Institute of Electrical and Electronics Engineers. From the first digital computer to the dot-com crash—a story of individuals, institutions, and the forces that led to a series of dramatic transformations. This engaging history covers modern computing from the development of the first electronic digital computer through the dot-com crash. The author concentrates on five key moments of transition: the transformation of the computer in the late 1940s from a specialized scientific instrument to a commercial product; the emergence of small systems in the late 1960s; the beginning of personal computing in the 1970s; the spread of networking after 1985; and, in a chapter written for this edition, the period 1995-2001. The new material focuses on the Microsoft antitrust suit, the rise and fall of the dot-coms, and the advent of open source software, particularly Linux. Within the chronological narrative, the book traces several overlapping threads: the evolution of the computer's internal design; the effect of economic trends and the Cold War; the long-term role of IBM as a player and as a target for upstart entrepreneurs; the growth of software from a hidden element to a major character in the story of computing; and the recurring issue of the place of information and computing in a democratic society. The focus is on the United States (though Europe and Japan enter the story at crucial points), on computing per se rather than on applications such as artificial intelligence, and on

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systems that were sold commercially and installed in quantities.

A Concise History of Computers, Smartphones and the Internet

Using Computers in History