

Project WHIRLWIND

THE HISTORY OF A PIONEER
COMPUTER

Kent C. Redmond & Thomas M. Smith



Project Whirlwind The History Of A Pioneer Computer

Jon Peddie



Project Whirlwind The History Of A Pioneer Computer:

Project Whirlwind Kent C. Redmond, Thomas Malcolm Smith, 1980 **The History of Visual Magic in Computers** Jon Peddie, 2013-06-13 If you have ever looked at a fantastic adventure or science fiction movie or an amazingly complex and rich computer game or a TV commercial where cars or gas pumps or biscuits behaved liked people and wondered How do they do that then you ve experienced the magic of 3D worlds generated by a computer 3D in computers began as a way to represent automotive designs and illustrate the construction of molecules 3D graphics use evolved to visualizations of simulated data and artistic representations of imaginary worlds In order to overcome the processing limitations of the computer graphics had to exploit the characteristics of the eye and brain and develop visual tricks to simulate realism The goal is to create graphics images that will overcome the visual cues that cause disbelief and tell the viewer this is not real Thousands of people over thousands of years have developed the building blocks and made the discoveries in mathematics and science to make such 3D magic possible and The History of Visual Magic in Computers is dedicated to all of them and tells a little of their story It traces the earliest understanding of 3D and then foundational mathematics to explain and construct 3D from mechanical computers up to today s tablets Several of the amazing computer graphics algorithms and tricks came of periods where eruptions of new ideas and techniques seem to occur all at once Applications emerged as the fundamentals of how to draw lines and create realistic images were better understood leading to hardware 3D controllers that drive the display all the way to stereovision and virtual reality AN/FSQ-7: the computer that shaped the Cold War

Bernd Ulmann, 2014-08-19 One of the most impressive computer systems ever was the vacuum tube based behemoth AN FSQ 7 which was the heart of the Semi Automatic Ground Environment Machines of this type were children of the Cold War and had a tremendous effect in politics They also generated a vast amount of spin offs which still shape our world This book focuses on the technological achievements and details of this marvelous machine and of its predecessor Whirlwind The various developments ranging from magnetic core memory to data transmission via telephone lines are covered in detail with schematics circuit descriptions and small programming examples This book is a treasure trove for those interested in the technology of early digital computers and those interested in the impact these machines had and still have on our current computer systems **The Origins of Digital Computers** B. Randell, 2013-12-21 *Readings in Computer Architecture*

Mark D. Hill, Gurindar S. Sohi, 2000 Offering a carefully reviewed selection of over 50 papers illustrating the breadth and depth of computer architecture this text includes insightful introductions to guide readers through the primary sources

Computers and Commerce Arthur Lawrence Norberg, 2005 Both ERA and EMCC had their roots in World War II and in postwar years both firms received major funding from the United States government Norberg analyzes the interaction between the two companies and the government and examines the impact of this institutional context on technological innovation He looks at the two firms operations after 1951 as independent subsidiaries of Remington Rand and documents

the management problems that began after Remington Rand merged with Sperry Gyroscope to form Sperry Rand in 1955

Jacket Gordon Welchman Joel Greenberg, 2014-02-24 Enigma's forgotten genius the story of Alan Turing's spymaster boss who led the team that cracked Hitler's WWII codes Daily Mail The Official Secrets Act and the passing of time have prevented the Bletchley Park story from being told by many of its key participants Here at last is a book that allows some of them to speak for the first time Gordon Welchman was one of the Park's most important figures Like Alan Turing his pioneering work was fundamental to the success of Bletchley Park and helped pave the way for the birth of the digital age Yet his story is largely unknown to many His book *The Hut Six Story* was the first to reveal not only how they broke the codes but how it was done on an industrial scale Its publication created such a stir in GCHQ and the NSA that Welchman was forbidden to discuss the book or his wartime work with the media In order to finally set the record straight Bletchley Park historian and tour guide Joel Greenberg has drawn on Welchman's personal papers and correspondence with wartime colleagues that lay undisturbed in his son's loft for many years Packed with fascinating new insights including Welchman's thoughts on key Bletchley figures and the development of the bombe machine this is essential reading for anyone interested in the clandestine activities at Bletchley Park A magnificent biography which finally provides recognition to one of Bletchley's and Britain's lost heroes Michael Smith Reveals a man equally as fascinating equally as important as Turing and tells us even more about what went on in this most secret of establishments during the war years Books Monthly *Advances in Computers*, 1985-06-17 *Advances in Computers* **Exploring the Early Digital** Thomas Haigh, 2019-04-30 Changes in the present challenge us to reinterpret the past but historians have not yet come to grips with the convergence of computing media and communications technology Today these things are inextricably intertwined in technologies such as the smartphone and internet in convergent industries and in social practices Yet they remain three distinct historical subfields tilled by different groups of scholars using different tools We often call this conglomeration the digital recognizing its deep connection to the technology of digital computing Unfortunately interdisciplinary studies of digital practices digital methods or digital humanities have rarely been informed by deep engagement with the history of computing Contributors to this volume have come together to reexamine an apparently familiar era in the history of computing through new lenses exploring early digital computing and engineering practice as digital phenomena rather than as engines of mathematics and logic Most focus on the period 1945 to 1960 the era in which the first electronic digital computers were created and the computer industry began to develop Because digitality is first and foremost a way of reading objects and encoding information within them we are foregrounding topics that have until now been viewed as peripheral in the history of computing betting odds calculators card file systems program and data storage programmable calculators and digital circuit design practices Reconceptualizing the history of computing as study of the early digital decenters the stored program computer repositioning it as one of many digital technologies **Before the Computer** James W. Cortada, 2015-03-08 Before the Computer fully

explores the data processing industry in the United States from its nineteenth century inception down to the period when the computer became its primary tool As James Cortada describes what was once called the office appliance industry he challenges our view of the digital computer as a revolutionary technology Cortada interprets reliance on computers as a development within an important segment of the American economy that was earlier represented largely by such instruments as typewriters tabulating machines adding machines and calculators He also describes how many of the practices of the office appliance industry evolved into those of the computer world Drawing on previously unavailable industry archives the author adds to our understanding of IBM s early history and offers short corporate histories of firms that include NCR Burroughs and Remington Rand Focusing on the United States but also including comparative material on Europe and Asia Before the Computer will be a unique source of knowledge about the companies that built office equipment and their enormous impact on economic life Originally published in 1993 The Princeton Legacy Library uses the latest print on demand technology to again make available previously out of print books from the distinguished backlist of Princeton University Press These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905

Routes to the Information Revolution Alexander Arbel, 2019-03-18 This book is a precise and comprehensive history of the digital computer It is the first collection of available information about the digital computer beginning with the philosophical and logical advancements in the early 20th century that led to it The book explores the histories and stories of the computer tracing its roots and routes It examines and analyzes commonly accepted views on the digital computer and its development and offers clearer and more accurate alternatives to them Its approach though dealing with the introduction and development of the digital computer is applicable to the history of technology in general The central question considered here is why were the automatic digital program controlled calculating devices developed simultaneously in Germany the USA and the UK during the period 1935 1945 Astonishingly the technologies ideas calculating means and calculating techniques existed and were available long before the development of the automatic digital program controlled calculating device However only during the period 1935 1945 did they materialize Ideas that may be viewed as attempts to develop this type of device began early in the modern era Babbage 1834 and Ludgate 1909 took the first steps and constructed devices that may be viewed as something like computers Nevertheless the concrete fulfillment and practical use of these ideas was accomplished only in the period of 1935 1945 by a group of developers who acted in ignorance of what was done before This book opens with a detailed discussion of these processes

Image Objects Jacob Gaboury, 2021-08-03 How computer graphics transformed the computer from a calculating machine into an interactive medium as seen through the histories of five technical objects Most of us think of computer graphics as a relatively recent invention enabling the spectacular visual effects and lifelike simulations we see in

current films television shows and digital games In fact computer graphics have been around as long as the modern computer itself and played a fundamental role in the development of our contemporary culture of computing In *Image Objects* Jacob Gaboury offers a prehistory of computer graphics through an examination of five technical objects an algorithm an interface an object standard a programming paradigm and a hardware platform arguing that computer graphics transformed the computer from a calculating machine into an interactive medium Gaboury explores early efforts to produce an algorithmic solution for the calculation of object visibility considers the history of the computer screen and the random access memory that first made interactive images possible examines the standardization of graphical objects through the Utah teapot the most famous graphical model in the history of the field reviews the graphical origins of the object oriented programming paradigm and finally considers the development of the graphics processing unit as the catalyst that enabled an explosion in graphical computing at the end of the twentieth century The development of computer graphics Gaboury argues signals a change not only in the way we make images but also in the way we mediate our world through the computer and how we have come to reimagine that world as computational *Between Human and Machine* David A. Mindell, 2003-04-30 Today we associate the relationship between feedback control and computing with Norbert Wiener's 1948 formulation of cybernetics But the theoretical and practical foundations for cybernetics control engineering and digital computing were laid earlier between the two world wars In *Between Human and Machine* Feedback Control and Computing before Cybernetics David A Mindell shows how the modern sciences of systems emerged from disparate engineering cultures and their convergence during World War II Mindell examines four different arenas of control systems research in the United States between the world wars naval fire control the Sperry Gyroscope Company the Bell Telephone Laboratories and Vannevar Bush's laboratory at MIT Each of these institutional sites had unique technical problems organizational imperatives and working environments and each fostered a distinct engineering culture Each also developed technologies to represent the world in a machine At the beginning of World War II President Roosevelt established the National Defense Research Committee one division of which was devoted to control systems Mindell shows how the NDRC brought together representatives from the four pre war engineering cultures and how its projects synthesized conceptions of control communications and computing By the time Wiener articulated his vision these ideas were already suffusing through engineering They would profoundly influence the digital world As a new way to conceptualize the history of computing this book will be of great interest to historians of science technology and culture as well as computer scientists and theorists *Between Human and Machine* Feedback Control and Computing before Cybernetics *Forbes Greatest Technology Stories* Jeffrey S. Young, 1998-09-29 Chronicles the six decades of technological advancement leading up to the high tech business revolution of today **Leonardo to the Internet** Thomas J. Misa, 2022-02-22 Now updated A comprehensive 500 year history of technology in society Historian Thomas J Misa's sweeping history of the relationship between technology and

society over the past 500 years reveals how technological innovations have shaped and have been shaped by the cultures in which they arose Spanning the preindustrial past the age of scientific political and industrial revolutions as well as the more recent eras of imperialism modernism and global security this compelling work evaluates what Misa calls the question of technology In this edition Misa brings his acclaimed text up to date by drawing on current scholarship while retaining sharply drawn portraits of individual people artifacts and systems Each chapter has been honed to relate to contemporary concerns Globalization Misa argues looks differently considering today s virulent nationalism cultural chauvinism and trade wars A new chapter focuses on the digital age from 1990 to 2016 The book also examines how today s unsustainable energy systems insecure information networks and vulnerable global shipping have helped foster geopolitical risks and instability and takes a look at the coronavirus pandemic from the perspective of Wuhan China s high tech district A masterful analysis of how technology and culture have influenced each other over five centuries Leonardo to the Internet frames a history that illuminates modern day problems and prospects faced by our technology dependent world *Calculating a Natural World* Atsushi Akera,2007 How the complex interplay of academic commercial and military interests produced an intense period of scientific discovery and technological innovation in computing during the Cold War **Building IBM** Emerson W.

Pugh,1995 No company of the twentieth century achieved greater success and engendered more admiration respect envy fear and hatred than IBM Building IBM tells the story of that company how it was formed how it grew and how it shaped and dominated the information processing industry Emerson Pugh presents substantial new material about the company in the period before 1945 as well as a new interpretation of the postwar era Granted unrestricted access to IBM s archival records and with no constraints on the way he chose to treat the information they contained Pugh dispels many widely held myths about IBM and its leaders and provides new insights on the origins and development of the computer industry Pugh begins the story with Herman Hollerith s invention of punched card machines used for tabulating the U S Census of 1890 showing how Hollerith s inventions and the business he established provided the primary basis for IBM He tells why Hollerith merged his company in 1911 with two other companies to create the Computing Tabulating Recording Company which changed its name in 1924 to International Business Machines Thomas J Watson who was hired in 1914 to manage the merged companies exhibited remarkable technological insight and leadership in addition to his widely heralded salesmanship to build Hollerith s business into a virtual monopoly of the rapidly growing punched card equipment business The fascinating inside story of the transfer of authority from the senior Watson to his older son Thomas J Watson Jr and the company s rapid domination of the computer industry occupy the latter half of the book In two final chapters Pugh examines conditions and events of the 1970s and 1980s and identifies the underlying causes of the severe problems IBM experienced in the 1990s Publisher

Computing Paul E. Ceruzzi,2012-06-15 Discover the history of computing through 4 major threads of development in this compact accessible history covering punch cards Silicon Valley smartphones and much more In an accessible style

computer historian Paul Ceruzzi offers a broad though detailed history of computing from the first use of the word digital in 1942 to the development of punch cards and the first general purpose computer to the internet Silicon Valley and smartphones and social networking Ceruzzi identifies 4 major threads that run throughout all of computing s technological development Digitization the coding of information computation and control in binary form The convergence of multiple streams of techniques devices and machines The steady advance of electronic technology as characterized famously by Moore s Law Human machine interface 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 In this concise and accessible account of the invention and development of digital technology Ceruzzi offers a general and more useful perspective for students of computer science and history

Mechanizing Proof Donald MacKenzie, 2004-01-30 Most aspects of our private and social lives our safety the integrity of the financial system the functioning of utilities and other services and national security now depend on computing But how can we know that this computing is trustworthy In *Mechanizing Proof* Donald MacKenzie addresses this key issue by investigating the interrelations of computing risk and mathematical proof over the last half century from the perspectives of history and sociology His discussion draws on the technical literature of computer science and artificial intelligence and on extensive interviews with participants MacKenzie argues that our culture now contains two ideals of proof proof as traditionally conducted by human mathematicians and formal mechanized proof He describes the systems constructed by those committed to the latter ideal and the many questions those systems raise about the nature of proof He looks at the primary social influence on the development of automated proof the need to predict the behavior of the computer systems upon which human life and security depend and explores the involvement of powerful organizations such as the National Security Agency He concludes that in mechanizing proof and in pursuing dependable computer systems we do not obviate the need for trust in our collective human judgment

The Future Was Here Jimmy Maher, 2018-01-26 Exploring the often overlooked history and technological innovations of the world s first true multimedia computer Long ago in 1985 personal computers came in two general categories the friendly childish game machine used for fun exemplified by Atari and Commodore products and the boring beige adult box used for business exemplified by products from IBM The game machines became fascinating technical and artistic platforms that were of limited real world utility The IBM products were all utility with little emphasis on aesthetics and no emphasis on fun Into this bifurcated computing environment came the Commodore Amiga 1000 This personal computer featured a palette of 4 096 colors unprecedented animation capabilities four channel stereo sound the capacity to run multiple applications simultaneously a graphical user interface and powerful processing potential It was Jimmy Maher writes in *The Future Was Here* the world s first true multimedia personal computer Maher argues that the Amiga s capacity to store and display color photographs manipulate video giving amateurs access to professional tools and use recordings of real world sound were the seeds of the digital media future digital cameras

Photoshop MP3 players and even YouTube Flickr and the blogosphere He examines different facets of the platform from Deluxe Paint to AmigaOS to Cinemaware in each chapter creating a portrait of the platform and the communities of practice that surrounded it Of course Maher acknowledges the Amiga was not perfect the DOS component of the operating systems was clunky and ill matched for example and crashes often accompanied multitasking attempts And Commodore went bankrupt in 1994 But for a few years the Amiga s technical qualities were harnessed by engineers programmers artists and others to push back boundaries and transform the culture of computing

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Table of Contents Project Whirlwind The History Of A Pioneer Computer

1. Understanding the eBook Project Whirlwind The History Of A Pioneer Computer
 - The Rise of Digital Reading Project Whirlwind The History Of A Pioneer Computer
 - Advantages of eBooks Over Traditional Books
2. Identifying Project Whirlwind The History Of A Pioneer Computer
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Project Whirlwind The History Of A Pioneer Computer
 - User-Friendly Interface
4. Exploring eBook Recommendations from Project Whirlwind The History Of A Pioneer Computer
 - Personalized Recommendations
 - Project Whirlwind The History Of A Pioneer Computer User Reviews and Ratings
 - Project Whirlwind The History Of A Pioneer Computer and Bestseller Lists

5. Accessing Project Whirlwind The History Of A Pioneer Computer Free and Paid eBooks
 - Project Whirlwind The History Of A Pioneer Computer Public Domain eBooks
 - Project Whirlwind The History Of A Pioneer Computer eBook Subscription Services
 - Project Whirlwind The History Of A Pioneer Computer Budget-Friendly Options
6. Navigating Project Whirlwind The History Of A Pioneer Computer eBook Formats
 - ePub, PDF, MOBI, and More
 - Project Whirlwind The History Of A Pioneer Computer Compatibility with Devices
 - Project Whirlwind The History Of A Pioneer Computer Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Project Whirlwind The History Of A Pioneer Computer
 - Highlighting and Note-Taking Project Whirlwind The History Of A Pioneer Computer
 - Interactive Elements Project Whirlwind The History Of A Pioneer Computer
8. Staying Engaged with Project Whirlwind The History Of A Pioneer Computer
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Project Whirlwind The History Of A Pioneer Computer
9. Balancing eBooks and Physical Books Project Whirlwind The History Of A Pioneer Computer
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Project Whirlwind The History Of A Pioneer Computer
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Project Whirlwind The History Of A Pioneer Computer
 - Setting Reading Goals Project Whirlwind The History Of A Pioneer Computer
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Project Whirlwind The History Of A Pioneer Computer
 - Fact-Checking eBook Content of Project Whirlwind The History Of A Pioneer Computer
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning

- Utilizing eBooks for Skill Development
- Exploring Educational eBooks

14. Embracing eBook Trends

- Integration of Multimedia Elements
- Interactive and Gamified eBooks

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