THE LEGACY OF ALAN TURING

VOLUME I

MACHINES AND THOUGHT

Edited by Peter Millican and Andy Clark



Machines And Thought The Legacy Of Alan Turing

Alan H. Fielding

Machines And Thought The Legacy Of Alan Turing:

Machines and Thought P. J. R. Millican, A. Clark, 1996-11-28 This is the first of two volumes of essays in commemoration of Alan Turing whose pioneering work in the theory of artificial intelligence and computer science continues to be widely discussed today A distinguished international cast of contributors focus on the three seminal ideas associated with his name the Turing test the Turing machine and the Church Turing thesis Machines and Thought Peter Millican, Andy Clark, 1999-03-18 This is the first of two volumes of essays on the intellectual legacy of Alan Turing whose pioneering work in artificial intelligence and computer science made him one of the seminal thinkers of the century A distinguished international cast of contributors focus on the three famous ideas associated with his name the Turing test the Turing machine and the Church Turing thesis a fascinating series of essays on computation by contributors in many fields Choice The Legacy of Alan Turing: Machines and thought P. J. R. Millican, Andy Clark, 1999 Alan Turing: Life and Legacy of a Great **Thinker** Christof Teuscher, 2013-06-29 Alan Turing s fundamental contributions to computing led to the development of modern computing technology and his work continues to inspire researchers in computing science and beyond This book is the definitive collection of commemorative essays and the distinguished contributors have expertise in such diverse fields as artificial intelligence natural computing mathematics physics cryptology cognitive studies philosophy and anthropology The volume spans the entire rich spectrum of Turing's life research work and legacy New light is shed on the future of computing science by visionary Ray Kurzweil Notable contributions come from the philosopher Daniel Dennett the Turing biographer Andrew Hodges and the distinguished logician Martin Davis who provides a first critical essay on an emerging and controversial field termed hypercomputation A special feature of the book is the play by Valeria Patera which tackles the scandal surrounding the last apple and presents as an enigma the life death and destiny of the man who did so much to decipher the Enigma code during the Second World War Other chapters are modern reappraisals of Turing s work on computability and deal with the major philosophical questions raised by the Turing Test while the book also contains essays addressing his less well known ideas on Fibonacci phyllotaxis and connectionism Philosophical Explorations of the Legacy of Alan Turing Juliet Floyd, Alisa Bokulich, 2017-05-30 Chapters Turing and Free Will A New Take on an Old Debate and Turing and the History of Computer Music are available open access under a Creative Commons Attribution 40 International License via link springer com The Essential Turing B. Jack. Copeland, 2004-09-10 Alan Turing pioneer of computing and WWII codebreaker is one of the most important and influential thinkers of the twentieth century In this volume for the first time his key writings are made available to a broad non specialist readership They make fascinating reading both in their own right and for their historic significance contemporary computational theory cognitive science artificial intelligence and artificial life all spring from this ground breaking work which is also rich in philosophical and logical insight An introduction by leading Turing expert Jack Copeland provides the background and guides the reader

through the selection About Alan Turing FRS OBE 1912 1954 studied mathematics at King's College Cambridge He was elected a Fellow of King s in March 1935 at the age of only 22 In the same year he invented the abstract computing machines now known simply as Turing machines on which all subsequent stored program digital computers are modelled During 1936 1938 Turing continued his studies now at Princeton University He completed a PhD in mathematical logic analysing the notion of intuition in mathematics and introducing the idea of oracular computation now fundamental in mathematical recursion theory An oracle is an abstract device able to solve mathematical problems too difficult for the universal Turing machine In the summer of 1938 Turing returned to his Fellowship at King's When WWII started in 1939 he joined the wartime headquarters of the Government Code and Cypher School GC CS at Bletchley Park Buckinghamshire Building on earlier work by Polish cryptanalysts Turing contributed crucially to the design of electro mechanical machines bombes used to decipher Enigma the code by means of which the German armed forces sought to protect their radio communications Turing s work on the version of Enigma used by the German navy was vital to the battle for supremacy in the North Atlantic He also contributed to the attack on the cyphers known as Fish Based on binary teleprinter code Fish was used during the latter part of the war in preference to morse based Enigma for the encryption of high level signals for example messages from Hitler and other members of the German High Command It is estimated that the work of GC CS shortened the war in Europe by at least two years Turing received the Order of the British Empire for the part he played In 1945 the war over Turing was recruited to the National Physical Laboratory NPL in London his brief to design and develop an electronic computer a concrete form of the universal Turing machine Turing s report setting out his design for the Automatic Computing Engine ACE was the first relatively complete specification of an electronic stored program general purpose digital computer Delays beyond Turing s control resulted in NPL s losing the race to build the world s first working electronic stored program digital computer an honour that went to the Royal Society Computing Machine Laboratory at Manchester University in June 1948 Discouraged by the delays at NPL Turing took up the Deputy Directorship of the Royal Society Computing Machine Laboratory in that year Turing was a founding father of modern cognitive science and a leading early exponent of the hypothesis that the human brain is in large part a digital computing machine theorising that the cortex at birth is an unorganised machine which through training becomes organised into a universal machine or something like it He also pioneered Artificial Intelligence Turing spent the rest of his short career at Manchester University being appointed to a specially created Readership in the Theory of Computing in May 1953 He was elected a Fellow of the Royal Society of London in March 1951 a high honour **The Turing Test** James H. Moor, 2012-12-06 In 1950 Alan Turing 1912 1954 published his famous article Computing Machinery and Intelligence in the journal Mind This article is arguably the most influential and widely read article in the philosophy of artificial intelligence Indeed most of the debate in the philosophy of artificial intelligence over the last fifty years concerns issues that were raised and discussed by Turing Turing s genius was

not only in developing the theory of computability but also in understanding the impact both practical and philosophical that computing machinery would have Turing believed that computers if properly designed and educated could exhibit intelligent behavior even behavior that would be indistinguishable from human intelligent behavior His vision of the possibility of machine intelligence has been highly inspiring and extremely controversial In this classic article Turing presented his well known imitation game and predicted that about the year 2000 an average interrogator will not have more than 70 per cent chance of making the right identification after five minutes of questioning in the imitation game Based on the results of the Loebner 2000 contest and the accomplishments in the field of AI as impressive as they are Turing's prediction remains The Search for a Theory of Cognition Stefano Franchi, Francesco Bianchini, 2011 Preliminary Material LIFE DEATH AND RESURRECTION OF THE HOMEOSTAT Stefano Franchi THE ONTOLOGY OF THE ENEMY NORBERT WIENER AND THE CYBERNETIC VISION Peter Galison COMPUTERS AS MODELS OF THE MIND ON SIMULATIONS BRAINS AND THE DESIGN OF COMPUTERS Peter Asaro AT THE PERIPHERY OF THE RISING EMPIRE THE CASE OF ITALY 1945 1968 Claudio Pogliano PROCESSING CULTURES STRUCTURALISM IN THE HISTORY OF ARTIFICIAL INTELLIGENCE Patrice Maniglier ARTIFICIAL INTELLIGENCE WITH A NATIONAL FACE AMERICAN AND SOVIET CULTURAL METAPHORS FOR THOUGHT Slava Gerovitch THE CARTESIAN LEIBNIZIAN TURING TEST Francesco Bianchini TURING COMPUTABILITY AND LEIBNIZ COMPUTABILITY Maurizio Matteuzzi LOGICAL INSTRUMENTS REGULAR EXPRESSIONS AI AND THINKING ABOUT THINKING Christopher M Kelty G DEL NAGEL MINDS AND MACHINES Solomon Feferman ENTANGLING EFFECTIVE PROCEDURES FROM LOGIC MACHINES TO QUANTUM AUTOMATA Rossella Lupacchini TURING 1948 VS G DEL 1972 Giorgio Sandri WORKS CITED INDEX ABOUT THE CONTRIBUTORS VIBS **Great Lives from History** ,2010 Provides in depth critical essays on important men and women in all areas of achievement from around the world and throughout history and includes 409 essays covering 413 individual inventors including 27 women From publisher s note p vii

Parsing the Turing Test Robert Epstein, Gary Roberts, Grace Beber, 2008-12-01 An exhaustive work that represents a landmark exploration of both the philosophical and methodological issues surrounding the search for true artificial intelligence Distinguished psychologists computer scientists philosophers and programmers from around the world debate weighty issues such as whether a self conscious computer would create an internet world mind This hugely important volume explores nothing less than the future of the human race itself Machine Learning Methods for Ecological Applications Alan H. Fielding, 2012-12-06 It is difficult to become an ecologist without acquiring some breadth For example we are expected to be competent statisticians and taxonomists who appreciate the importance of spatial and temporal processes whilst recognising the potential offered by techniques such as RAPD It is therefore with some trepidation that we offer a collection of potentially useful methods that will be unfamiliar and possibly alien to most ecologists I don't feel old but when I was undertaking my postgraduate research our lab calculator was mechanical There was great excitement in my fmal

year when we obtained an unbelievably expensive electronic calculator Later I progressed to running obs on a PRIME minicomputer via a collection of punched cards Those who complain about the problems with current computers don t know how lucky they are In 1984 I wrote a book entitled Computing for Biologists Although it was mainly concerned with writing short programs it did also look at wider aspects of the role of computers in the biological sciences Machine learning was not mentioned in that book probably because of ignorance but also because the methods were relatively unknown outside of the relatively small number of workers in the broad field that is now known as machine learning During 1985 I spent a sabbatical year at York University following their Biological Computation masters programme This course was a unique blend of computer science mathematics and statistics Ramsey's Legacy Hallvard Lillehammer, D. H. Mellor, 2005-07-28 The Cambridge philosopher Frank Ramsey died tragically in 1930 at the age of 26 but had already established himself as one of the most brilliant minds of the 20th century These original essays written to commemorate the centenary of Ramsey s birth offer fresh perspectives on his work and show its ongoing relevance The Turing Test Argument Bernardo Gonçalves, 2023-12-12 This book departs from existing accounts of Alan Turing's imitation game and test by placing Turing's proposal in its historical social and cultural context It reconstructs a controversy in England 1946 1952 over the intellectual capabilities of digital computers which led Turing to propose his test It argues that the Turing test is best understood not as a practical experiment but as a thought experiment in the modern scientific tradition of Galileo Galilei The logic of the Turing test argument is reconstructed from the rhetoric of Turing s irony and wit Turing believed that learning machines should be understood as a new kind of species and their thinking as different from human thinking and yet capable of imitating it He thought that the possibilities of the machines he envisioned were not utopian dreams And yet he hoped that they would rival and surpass chauvinists and intellectuals who sacrifice independent thinking to maintain their power These would be transformed into ordinary people as work once considered intellectual would be transformed into non intellectual mechanical work The Turing Test Argument will appeal to scholars and students in the sciences and humanities and all those interested in Turing s vision of the future of intelligent machines in society and nature *Machine Dreams* Philip Mirowski,2002 This is the first cross over book into the history of science written by an historian of economics It shows how history of technology can be integrated with the history of economic ideas The analysis combines Cold War history with the history of postwar economics in America and later elsewhere revealing that the Pax Americana had much to do with abstruse and formal doctrines such as linear programming and game theory It links the literature on cyborg to economics an element missing in literature to date The treatment further calls into question the idea that economics has been immune to postmodern currents arguing that neoclassical economics has participated in the deconstruction of the integral self Finally it argues for an alliance of computational and institutional themes and challenges the widespread impression that there is nothing else besides American neoclassical economic theory left standing after the demise of Marxism The Turing Guide Jack

Copeland, Jonathan Bowen, Mark Sprevak, Robin Wilson, 2017-02-16 Alan Turing has long proved a subject of fascination but following the centenary of his birth in 2012 the code breaker computer pioneer mathematician and much more has become even more celebrated with much media coverage and several meetings conferences and books raising public awareness of Turing s life and work This volume will bring together contributions from some of the leading experts on Alan Turing to create a comprehensive guide to Turing that will serve as a useful resource for researchers in the area as well as the increasingly interested general reader The book will cover aspects of Turing's life and the wide range of his intellectual activities including mathematics code breaking computer science logic artificial intelligence and mathematical biology as well as his subsequent influence Mind as Machine Margaret A. Boden, 2006 The development of cognitive science is one of the most remarkable and fascinating intellectual achievements of the modern era It brings together psychology neuroscience artificial intelligence computing philosophy linguistics and anthropology in the project of understanding the mind by modelling its workings Oxford University Press now presents a masterful history of cognitive science told by one of its most eminent practitioners The Journal of Philosophy ,1999 **Computational Intelligence** David B. Fogel, Charles J. Robinson, 2003-06-16 The definitive survey of computational intelligence from luminaries in the field Computational intelligence is a fast moving multidisciplinary field the nexus of diverse technical interest areas that include neural networks fuzzy logic and evolutionary computation Keeping up with computational intelligence means understanding how it relates to an ever expanding range of applications This is the book that ties it all together and puts that understanding well within your reach In Computational Intelligence The Experts Speak editors David B Fogel and Charles J Robinson present an unmatched compilation of expanded papers from plenary and special lecturers attending the 2002 IEEE World Congress on Computational Intelligence Collectively these papers provide a compelling snapshot of the issues that define the industry as observed by some of the top minds in the computational intelligence community In a series of topical chapters this comprehensive volume shows how current technology is shaping computational intelligence and it delivers eye opening insights into the field's future challenges. The research detailed here covers an array of leading edge applications from coevolutionary robotics to underwater sensors and cognitive science in such areas as Self organizing systems Situation awareness Human machine interaction Automatic control Data recognition Computational Intelligence also includes introductions to each grouping of contributions that provide helpful tutorials and discuss important parallels between topics Whatever your role might be in this dynamic influential field this is the one reference that no practitioner of computational Philosophy and Computing Luciano Floridi, 2002-01-04 Philosophy and Computing explores intelligence should be without each of the following areas of technology the digital revolution the computer the Internet and the Web CD ROMs and Mulitmedia databases textbases and hypertexts Artificial Intelligence the future of computing Luciano Floridi shows us how the relationship between philosophy and computing provokes a wide range of philosophical questions is there a philosophy of information What can be achieved by a classic computer How can we define complexity What are the limits of quantam computers Is the Internet an intellectual space or a polluted environment What is the paradox in the Strong Artificial Intlligence program Philosophy and Computing is essential reading for anyone wishing to fully understand both the development and history of information and communication technology as well as the philosophical issues it ultimately raises

Turing's Imitation Game Kevin Warwick, Huma Shah, 2016-09-22 Can you tell the difference between talking to a human and talking to a machine Or is it possible to create a machine which is able to converse like a human In fact what is it that even makes us human Turing s Imitation Game commonly known as the Turing Test is fundamental to the science of artificial intelligence Involving an interrogator conversing with hidden identities both human and machine the test strikes at the heart of any questions about the capacity of machines to behave as humans While this subject area has shifted dramatically in the last few years this book offers an up to date assessment of Turing s Imitation Game its history context and implications all illustrated with practical Turing tests The contemporary relevance of this topic and the strong emphasis on example transcripts makes this book an ideal companion for undergraduate courses in artificial intelligence engineering or computer science

The book delves into Machines And Thought The Legacy Of Alan Turing. Machines And Thought The Legacy Of Alan Turing is a vital topic that needs to be grasped by everyone, from students and scholars to the general public. The book will furnish comprehensive and in-depth insights into Machines And Thought The Legacy Of Alan Turing, encompassing both the fundamentals and more intricate discussions.

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- 6. In chapter 5, the author will draw a conclusion about Machines And Thought The Legacy Of Alan Turing. The final chapter will summarize the key points that have been discussed throughout the book.
 This book is crafted in an easy-to-understand language and is complemented by engaging illustrations. It is highly recommended for anyone seeking to gain a comprehensive understanding of Machines And Thought The Legacy Of Alan Turing.

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