

BSHR

British Society for the History of Radiology



The History & Evolution of Artificial Intelligence

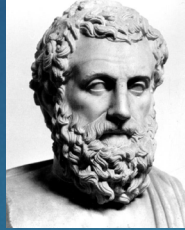
LIZ BECKMANN

LANMARK

CHAIR BRITISH SOCIETY FOR THE HISTORY OF RADIOLOGY

Over the centuries

- ▶ Aristotle



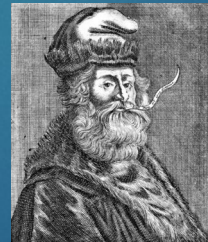
- ▶ Euclid



- ▶ Al-Khwarizmi



- ▶ Ramon Llull



17th Century

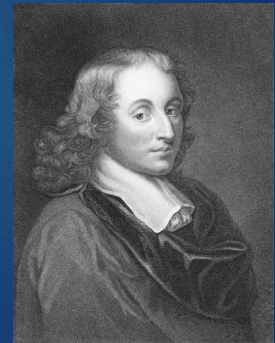
- ▶ C 1673 - Physical Systems Hypothesis

Gottfried Wilhelm Leibniz



- ▶ 1642 – 1st Mechanical Calculating Machine

Blaise Pascal

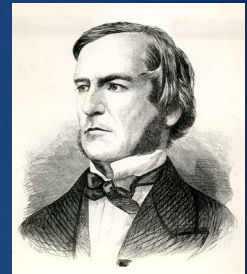


19th Century

- ▶ 1837 – design for programmable machine
Babbage and Lovelace



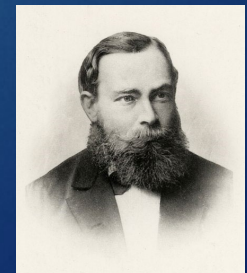
- ▶ 1847 - a formal language for logic reasoning
George Boole



- ▶ 1886 – The Game of Logic
Charles Dodgson (Lewis Carroll)

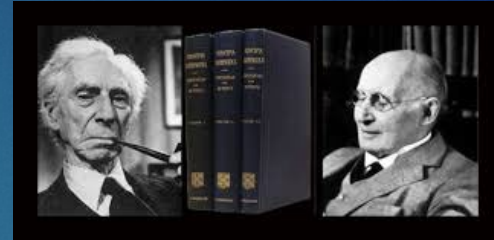


- ▶ 1879- Begriffsschrift
Gottlob Frege



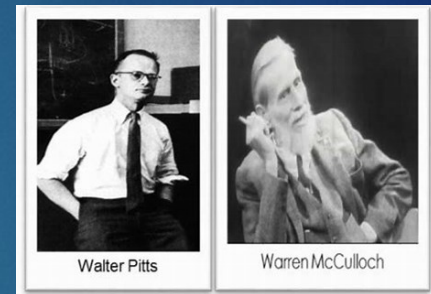
20th Century

- ▶ 1910's Principia Mathematica
Whitehead & Russell

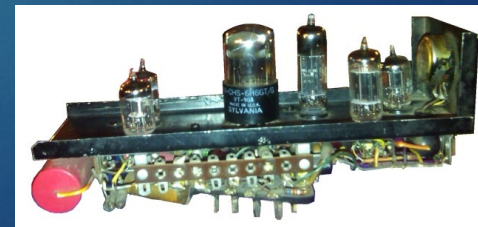


- ▶ 1940s – Programmable Digital Computer

- ▶ 1943 - Foundations of Neural networks
Pitts and McCulloch

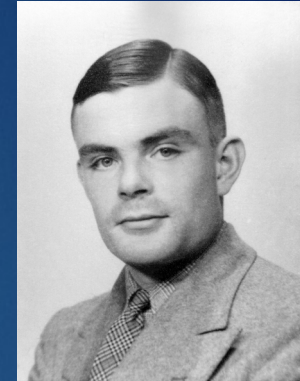


- ▶ 1951 – First Neural Network Machine
Minsky and Edmonds



20th Century

- ▶ 1950- Alan Turing introduces the Turing test



- ▶ 1956 – John McCarthy – ARTIFICIAL INTELLIGENCE



20th Century

- ▶ 1960s AI research centres
Michie in Edinburgh – 1965



- ▶ Dendral – 1st Expert system
Analysis of Chemical Mass Spectra

DENDRAL system (Stanford)



Joshua Lederberg



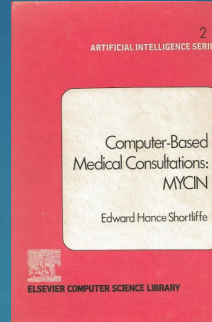
Edward Feigenbaum



Carl Djerassi

AI into Medicine

- ▶ 1970's – Mycin



- ▶ In 1984 Shortliffe with Clancey made the statement:



- ▶ “ Medical artificial Intelligence is primarily concerned with the construction of AI programs that perform diagnosis and make therapy recommendations”

AI into Medicine

- ▶ Puff - Automatic interpretation of pulmonary function tests 1977
- ▶ Help – Knowledge based HIS 1980
- ▶ DXplain- Clinical decision support system 1987
- ▶ Kardio – Interpret ECGs Late 1980s
- ▶ Germwatcher – checks for hospital acquired infections 1990s
- ▶ Piers- Pathology Interpretive reporting System 1990s

AI in Imaging & Oncology

- ▶ 1967 –Detection of Radiographic Abnormalities in Mammograms by means of Optical Scanning and Computer Analysis

Winsberg et al

- ▶ 1975 -Automatic detection of suspicious abnormalities in Breast Radiographs

Kimme et al

- ▶ 1970's Computer Image Analysis

AI in Imaging & Oncology

- ▶ 1980s – Image Analysis – Expert systems
- ▶ Computer Aided Detection
- ▶ Computer Assisted Diagnosis
- ▶ CAD - Commercial systems in 1990s
 - ▶ Breast Imaging
 - ▶ Lung
 - ▶



AI in Imaging & Oncology in 21st Century

- ▶ Historic work on
 - ▶ Mathematical concepts
 - ▶ AI Elements
- ▶ Combined with
 - ▶ Faster processing
 - ▶ Smarter algorithms
- ▶ AI - in Imaging and therapy Systems

BSHR

British Society for the History of Radiology



The History & Evolution of Artificial Intelligence

LIZ BECKMANN

LANMARK

CHAIR BRITISH SOCIETY FOR THE HISTORY OF RADIOLOGY

