

Alan Turing: A Marginalized Icon in Early Computing

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Overview/Introduction/Thesis

This project examines the impact of Alan M. Turing (1912-1954), a man prosecuted by the British government for his sexual orientation, on the early history of computer science, including artificial intelligence and the universal Turing machine, a fundamental building block in all modern computers.

Key Findings

In 1936, as a Fellow at King's College, Cambridge, Turing published the paper "On Computable Numbers", which proved that the question of whether any algorithm would halt or run forever was unsolvable by proposing a machine with the same fetch-execute-store cycle as modern central processing units, as expanded upon by John von Neumann in 1945.

In 1950, Turing proposed the question "can machines think", and created the imitation game to answer this question, thus founding the field of artificial intelligence.

In 1952, Turing was convicted of gross indecency (at the time, code for homosexual behavior), and chose to be chemically castrated instead of facing prison time.

It wouldn't be until 1974, twenty years after Turing's reported suicide, that his codebreaking work during World War II was officially acknowledged, and he was pardoned in 2013.

Visual Evidence



Left: Turing in 1951, the year of his election to the Royal Society and the year before his gross indecency conviction. Elliott & Fry, *Alan Turing*, 1951. National Portrait Gallery, London. Below: The Pilot Automatic Computing Engine (Pilot ACE), based on Turing's ACE design, currently held at the Science Museum, London. Hatfield, Jason, *Pilot ACE*, 2024.



Impact/Conclusions

Without Turing's work, World War II would've likely been extended past 1945. In addition, the advent of modern computing would likely be delayed. It is impossible to acknowledge the full breadth of Turing's impact without acknowledging his homosexuality, and the reprehensible act of requiring him to be chemically castrated for acting on it.

Bibliography/References:

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