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## **"Turing: From Breaking Enigma to Deciphering the Mind"**

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**Abstract:** At the turn of the millennium Time magazine listed Alan Turing among the twentieth century's 100 greatest minds, alongside the Wright brothers, Albert Einstein, DNA busters Crick and Watson, and the discoverer of penicillin, Alexander Fleming. Turing's achievements during his short life of 42 years were legion. Best known as the genius who broke some of Germany's most secret codes during the war of 1939-45, Turing was also the father of the modern computer. Today, all who click or touch to open are familiar with the impact of his ideas. To Turing we owe the brilliant innovation of storing applications, and the other programs necessary for computers to do our bidding, inside the computer's memory, ready to be opened when we wish. We take for granted that we use the same slab of hardware to shop, manage our finances, type our memoirs, play our favourite music and videos, and send instant messages across the street or around the world. Like many great ideas this one now seems as obvious as the cart and the arch, but with this single invention—the stored-program universal computer—Turing changed the world.

Turing was a theoretician's theoretician, yet like Leonardo da Vinci and Isaac Newton before him he also had immensely practical interests. In 1945 he designed a vast stored-program electronic computer called the Automatic Computing Engine, or ACE. Turing's sophisticated ACE design achieved commercial success as the English Electric Company's DEUCE, one of the earliest electronic computers to go on the market. In those days—the first eye-blink of the Information Age—the new machines sold at a rate of no more than a dozen or so a year. But in less than four decades, Turing's ideas transported us from an era where 'computer' was the term for a human clerk who did the sums in the back office of an insurance company or science lab, into a world where many have never known life without the Internet. 'Turing: From Breaking Enigma to Deciphering the Mind' is an introduction to Turing and his ideas, from the universal computing machine of 1936 through Bletchley Park and the ACE to his controversial views on computability and the mind.