

The Quantum Advantage

Interferometric Computing

Quantum theory is a theory of parallel interfering universes.

David Deutsch¹ (1985)

The secret behind almost every disruptive advance in the history of technology has been parallelism. Parallelism allows a system to do many things at once, cutting costs and time. Five hundred years ago, when Johannes Gutenberg conceived of movable type and the printing press, he parallelized the production of books, cutting the time to generate a full medieval manuscript from one in many months to many in one month. Two centuries later, the Industrial Revolution was built on the foundation of parallel production enabled by the newly harnessed power of steam. More recently, the speed of telecommunications rose exponentially after the introduction of fiber optics that packed an increasing number of parallel communication channels into a single fiber. Today, cloud computing and deep learning have emerged from parallel distributed processing, opening up new capabilities for computing power and artificial intelligence. These advances over the past half millennium have been driven by the