Quantum computing is a rapidly-emerging technology that harnesses the laws of quantum mechanics to solve problems too complex for classical computers.

Today, IBM Quantum makes real quantum hardware—a tool scientists only began to imagine three decades ago—available to thousands of developers.

Technologies like quantum sensors, quantum computers and quantum information security are emerging from labs around the world, and we are already seeing the tremendous possibilities. Canadian scientists continue to be a driving force; pushing the boundaries of what our quantum technological capabilities are and what they will become.

The main motive of TFQ is to bring quantum computing and machine learning techniques together to evenly build and control natural as well as artificial quantum computers. Scientists are still facing some new and known challenges with quantum computing, but it will surely lead to software development in the coming years.

Scientists working on quantum computing call it one of the most interesting theoretical tools in artificial intelligence. Think of it as an incredibly powerful calculator programmed with deep quantum computing. Quantum mechanics is a mathematical language, much like calculus. Just as classical physics uses calculus to explain nature, quantum physics uses quantum mechanics to explain nature. Just as classical computers can be thought of in boolean algebra terms, quantum computers are reasoned about with quantum mechanics.

Scientists can theoretically encode data in a qubit using virtually any pair of states of a quantum system—for instance, two of a molecule's potentially many different energy levels.

Computer scientists, but also for information system researchers. This paper introduces the basic concepts of quantum computing and describes well-known quantum applications for non-physicists. The current status of the developments in quantum computing is also presented. Keywords: Quantum computer, Quantum gate, QKD, Shor, Grover
The market should reach $1.6 billion by 2026 from $390.7 million in 2021 at a compound annual growth rate (CAGR) of 33.2% for the forecast period of 2021 to 2026.

Recent news items published within the last 6 months on quantum computing developments are listed below. Click on the hyperlinked item to go to the press release or news article for more details. For older news items published in 2021 click here, for 2020 click here, for 2019 click here, for 2018 click here, and for items published in 2015-2017, click here.

March 9, 2022

Together, this group used Google’s Sycamore quantum computing hardware to program 20 “spins” using the quantum version of a classical computer’s bits of information, known as qubits.

Mar 11, 2022

Quantum Computing News.

2022 — Physicists have proposed a new architecture for a scalable quantum computer. Making use of the collective motion of the constituent particles, they were able IBM scientists simulated the bonding in H₂, LiH and BeH₂ molecules using a quantum computer, research that was subsequently published in Nature in 2017. The release of Qiskit Aqua in 2018 enables the IBM Quantum community to experiment with chemistry problems by translating chemistry-specific problems into inputs for Aqua algorithms.

The term quantum mirage refers to a phenomenon that may make it possible to transfer data without conventional electrical wiring. Instead of forcing charge carriers through solid conductors, a process impractical on a microscopic scale, electron wave phenomena are made to produce effective currents. Leading the research are...