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Quantum Computing Meets Healthcare

Solving problems in healthcare and life sciences with quantum computing may have just become a not so distant future, with a new partnership between IBM and Cleveland Clinic.

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While for many quantum computing may still look like years away, IBM intends to deploy the technology in the medical field, such as for processing massive amounts of genetic data. According to Jason Hawthorne of The Motley Fool writing for Nasdaq, with this project IBM may overcome its competitors, such as Microsoft or Alphabet, in the quantum computing run.

The new 10-year joint initiative is to establish the Discovery Accelerator that will serve as the technology foundation for Cleveland Clinic's new Global Center for Pathogen Research & Human Health . The Accelerator is aimed at "fundamentally advancing the pace of discovery in healthcare and life sciences through the use of high performance computing on the hybrid cloud, artificial intelligence (AI) and quantum computing technologies." Research will be focusing on areas such as genomics, single cell transcriptomics, population health, clinical applications and chemical and drug discovery. The initiative is promised to also cover education and workforce development dimensions related to quantum computing.

In the past, the two organisations collaborated on AI, with Cleveland Clinic using IBM's Watson, which eventually failed to become widely adopted and never became profitable for the company. Now the plan is to install IBM Quantum System One, its first in the U.S., on Cleveland Clinic's campus in Cleveland in 2023. It will be the first on-premise quantum computing system in the private sector, and Cleveland Clinic will also have cloud access to more than 20 company's quantum systems.

Hawthorne provides some impressive examples of how this new technology may change the landscape forever, e.g. decreasing the time needed for development and testing of a new therapy from about 15 years to "weeks if not days", or how analysis of genomic data would require just dozens of operations with a quantum system instead of billions on a traditional computer thus decreasing the execution time tremendously.

"It could enable super-fast drug development with clinical trials conducted on virtual humans, instantaneous genome sequencing for a personalized prescription, or the creation of comprehensive electronic health records (EHRs) using every piece of relevant data to generate truly predictive care," Hawthorne writes noting the potential of quantum computing in various fields, from pandemic prevention to real-time clinical decision support. Time will show whether the new initiative will become more successful than Watson.

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