NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR

ASSIGNMENT
ON
EMERGING TECHNOLOGIES IN HEALTH CARE

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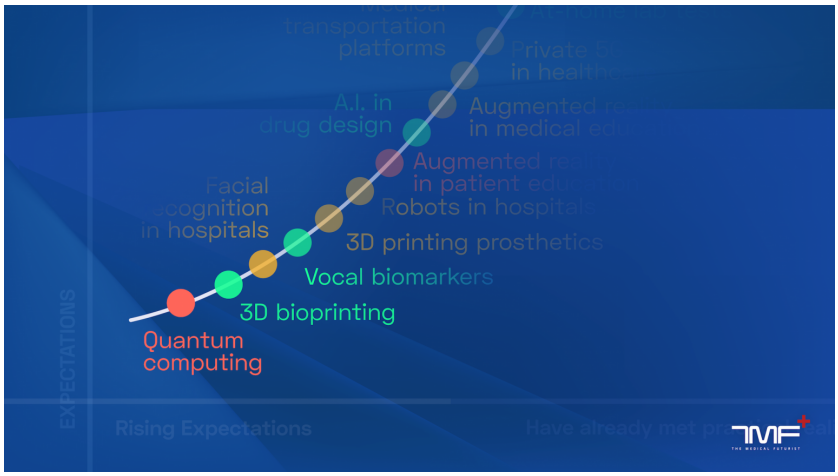
2 WHAT IS EMERGING TECHNOLOGIES ?

Emerging technology is a term generally used to describe a new technology, but it may also refer to the continuing development of an existing technology; it can have slightly different meaning when used in different areas, such as media, business, science, or education.

3 EMERGING TECHNOLOGIES IN HEALTHCARE

The healthcare sector of today benefits immensely from technological advancements. Emerging technologies are helping develop newer, better treatments while alleviating cost burdens. Some technologies are yet to be explored to their full potential, but have still brought about a massive shift in the sector. Innovations such as artificial intelligence and robotics are completely changing the landscape, ushering in a new future for healthcare.



4 7 EMERGING TECHNOLOGIES IN HEALTHCARE

Healthcare technologies are diverse and encompass devices, medicines, vaccines, procedures, and systems to streamline operations, trim costs, and improve the quality of care delivered.

- QUANTUM COMPUTING: In the healthcare industry, quantum computing could enable a range of disruptive use cases for providers and health plans by accelerating diagnoses, personalizing medicine, and optimizing pricing. Quantum-enhanced machine learning algorithms are particularly relevant to the sector.
- 3D BIOPRINTING : 3D printing is used for the development of new surgical cutting and drill guides, prosthetics as well as the creation of patient-specific replicas of bones, organs, and blood vessels.
  3D Printing was first used for medical purposes as dental implants and custom prosthetics in the 1990s.
- VOICE BIOMAKERS : Vocal biomarkers have amazing potential in reforming diagnostics. As certain diseases, like those affecting the heart, lungs, vocal folds or the brain can alter a person's voice, artificial intelligence (A.I.)-based voice analyses provide new horizons in medicine. Using biomarkers for diagnosis and remote monitoring can also be used for COVID-screening.
- AUGMENTED REALITY : By wearing an AR enabled head mounted device, surgeons can now view patient

vitals during a procedure without the need to look away and gather data from multiple displays. ... VR can help patients to get over phobias and stress induced disorders.

- ARTIFICIAL INTELLIGENCE : AI in healthcare is an umbrella term to describe the application of machine learning (ML) algorithms and other cognitive technologies in medical settings. ... Using patient data and other information, AI can help doctors and medical providers deliver more accurate diagnoses and treatment plans.

- BLOCKCHAIN : This technology is expected to completely transform the collection and storage of medical history. Not only it would be easier to store information and access it through blockchain, but security threats would also be minimized. It would allow doctors to access the entire medical history of a patient, including any genetic illnesses and allergies, allowing them to customize treatment to provide the best possible care. The concept of blockchain for healthcare is still under development.

- NANOTECHNOLOGY : Nanotechnology for the healthcare space has been under development for a long time now. It studies molecular structure to develop precise devices and medicines. Some of developments using nanotechnology include nanorobots and nanomedicines. In 2018, an electronic pill was developed using nanotechnology; the pill can be controlled after release in the patient's body to relay diagnostic details or to release drugs in a specific section of the body. Currently, the technology is used to make smart patches that can monitor wounds and stimulate rapid healing.

Most of this application is still under research.

5 REFERENCE

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