

NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR



BIOMEDICAL ENGINEERING ASSIGNMENT

Future of Healthcare

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FUTURE OF HEALTHCARE

The future of healthcare is shaping up in front of our very eyes with advances in digital healthcare technologies, such as artificial intelligence, VR/AR, 3D-printing, robotics or nanotechnology. We have to familiarize with the latest developments in order to be able to control technology and not the other way around. The future of healthcare lies in working hand-in-hand with technology and healthcare workers have to embrace emerging healthcare technologies in order to stay relevant in the coming years.

Technology and humans hand-in-hand for a better healthcare

In medicine and healthcare, digital technology could help transform unsustainable healthcare systems into sustainable ones, equalize the relationship between medical professionals and patients, provide cheaper, faster and more effective solutions for diseases – technologies could win the battle for us against cancer, AIDS or Ebola – and could simply lead to healthier individuals living in healthier communities.

Artificial Intelligence

artificial intelligence has the potential to redesign healthcare completely. AI algorithms are able to mine medical records, design treatment plans or create drugs way faster than any current actor on the healthcare palette including any medical professional.

Virtual reality

VR is being used to train future surgeons and for actual surgeons to practice operations. The technology is also benefiting patients and has been proven to be effective in pain management. Women are being equipped with VR headsets to visualize soothing landscapes so as to help them get

through labour pain. Patients suffering from gastrointestinal, cardiac, neurological and post-surgical pain have shown a decline in their pain levels when using VR to distract them from painful stimuli.

Augmented reality

Augmented reality differs from VR in two respects: users do not lose touch with reality and it puts information into eyesight as fast as possible. These distinctive features enable AR to become a driving force in the future of medicine; both on the healthcare providers' and the receivers' side.

Nanotechnology

Nanotechnology deals with the engineering of systems at the atomic and molecular level. It combines components of molecular chemistry and physics with engineering to gain an advantage over the unique changes to the properties of materials that occur at a nanoscale. Nanomedicine applies nanotechnology in healthcare applications such as treatment and diagnostics of various diseases using nanoparticles in medical devices, as well as nanoelectronic biosensors and molecular nanotechnology. Nanomedicine is currently being used to develop smart pills and for treating cancer.

Revolutionizing Drug Development

Currently, the process of developing new drugs is too long and too expensive. However, there are ways to improve drug development with methods ranging from artificial intelligence to in silico trials. Such new technologies and approaches already are and will be dominating the pharmaceutical landscape in the years to come. Companies like Turbine, Recursion Pharmaceuticals and Deep Genomics are leveraging the power of A.I. to develop new drug candidates and novel therapeutic solutions in record time and speed up the time to market, all while saving costs and lives