**Bringing IoT and Machine Learning to Healthcare**

IoT is sometimes referred to in the healthcare industry as the Internet of Medical Things (IoMT). It consists of medical devices, patient monitoring tools, wearables and other sensors that can send signals to other devices via internet. These tools generate massive amounts of data that must be stored, integrated and analyzed in order to generate actionable insights for chronic disease management and acute patient care needs.

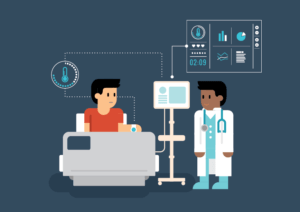


Image Credit: Medical Futurist

Personalized Healthcare (PH) is a new patient-oriented healthcare approach which expects to improve the traditional healthcare system. The focus of this new advancement is the patient data collected from patient Electronic health records (EHR), Internet of Things (IoT) sensor devices, wearables and mobile devices, web-based information and social media. PH applies Artificial Intelligence (AI) techniques to the collected dataset to improve disease progression technique, disease prediction, patient self-management and clinical intervention. Machine learning techniques are widely used in this regard to develop analytic models. These models are integrated into different healthcare service applications and clinical decision support systems. These models mainly analyze the collected data from sensor devices and other sources to identify behavioral patterns and clinical conditions of the patient.

For example, these models analyze the collected data to identify the patient's improvements, habits and anomaly in daily routine, changes in sleeping and mobility, eating, drinking and digestive pattern. Based on those patterns the healthcare applications and the clinical decision support systems recommend lifestyle advice, special treatment and care plans for the patient. The doctors and caregivers can also be engaged in the care plan process to validate lifestyle advice. However, there are many uncertainties and a grey area when it comes to applying machine learning in this context. Clinical, behavior and lifestyle data in nature are very sensitive. There could be different types of biased involved in the process of data collection and interpretation. The training data model could have an older version of the dataset. All these could lead to an incorrect decision from the system without the user's knowledge.

References:

1. Integrating IoT into Healthcare, Agriculture and Transportation Use Cases: <https://www.iotforall.com/integrating-machine-learning-ml-iot-applications/>
2. Applying Internet of Things and Machine-Learning for Personalized Healthcare: Issues and Challenges: <https://www.iotforall.com/integrating-machine-learning-ml-iot-applications/>