DATAART

Healthcare Technology and Big Data Collide

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Over the past few years, there have been several major global market shifts in medical technology. Advanced technology, usually reserved for major hospitals, is showing up in local doctor offices and even in the homes of consumers. Another related shift is the increased demand for pre-clinic and post-clinic healthcare devices that can be used in small practices or in the home. We've also witnessed the cost of hardware dropping, and the complexity and cost of software becoming more comparable with hardware. And perhaps the most important trend is the market's growing interest in using the latest technology advances for diagnostics. These factors have all culminated in the rise of software development outsourcing for big and small manufacturers across the healthcare industry.

One example of this is the application of Spectral Dynamics technology used for medical diagnostics. Spectral Dynamics can be utilized on the premise that every physical condition has its own unique signature, and by means of analyzing these signatures any physical state can be diagnosed and treated. Leveraging this theory and technology, CME (complex medical expert), a diagnostic system aimed at helping physicians decide diagnoses as well as treatments for clinical pathologies.

Spectral analysis is a great example of big data's infiltration into the medical field. While big data is traditionally a term used in technology and finance, its proven framework has potential for breakthroughs in medicine. Here's how it works: the patient's organs are scanned, and data is automatically compared to the data in CME's vast database. A set of markers helps to determine the disease and either its stage or the patient's predisposition to it.

While the technology behind the scanning has potential to save many lives, without a database of records and diagnostics history—medicine's play on big data—a diagnosis would not be possible. That's where DataArt steps in. We helped to design and develop a Professional Assistant for CME that we called eri to enhance the big data functionality and streamline diagnosis for the healthcare community. Eri integrates diagnostic information with physicians' computers to provide access to patient data, diagnostic history and statistical reports.

DataArt developers did this by using complex mathematical analysis (the kind often seen in the finance world) to support the device calibration as it automatically scans the patient's spectrum and enables efficient patient data management. This includes a breadth of information on the client, including patient records, demographic info and information from previous visits. eri records the signal from scanning, compares it to the CME database, and helps suggest a diagnosis, revealing the patient's potential problems and the possible path for further examinations based on the detected problematic zones and the best suitable treatment.

This ground breaking technology marries big data and healthcare, and is a great example of what is and will become possible as not only hospitals but also smaller consumers can afford to invest

in the technology of the future. On the technology side, prices of hardware are going down and software solutions are gaining in popularity. This is due to the increased interest in developing diagnostic and treatment technology as well as the cost savings associated outsourced development.