

Chapter 7

IBM's Watson Analytics for Health Care: A Miracle Made True

Mayank Aggarwal
GKV, India

Mani Madhukar
IBM, India

ABSTRACT

With the advent of Internet and Computers, Information Technology (IT) has become a major tool to aid medical issues. IBM Watson is one such initiative by IBM, which provides integration with any application to build Internet of Things (IoT), based health applications and also assists by its existing services. The strength of Watson is its data analytics and Artificial Intelligence. The four variants of Watsons are Watson Discovery Advisor, Oncology, Clinical Trial Matching and Curam. It is based on Open Source Apache UIMA, Apache Lucene. Its integration with IBM Bluemix Cloud, Platform as a Service (PaaS) makes it easily available to users.

DOI: 10.4018/978-1-5225-1002-4.ch007

Copyright ©2017, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

INTRODUCTION

The use of IT for health care is no longer a new concept. Use of computers and IT in every field has become a common practice. Recording of patient histories, details, billing and other information in computers has become a common practice everywhere.

But the actual use needed is still missing in India.

According to an expert “75% of treatment are done on Trial Basis with not exact dosage of medicines and actual number of tests prescribed” such things result in millions of deaths per year in India. If we can have a collection of all records of patient histories countrywide and some way to predict on this basis it would be a miracle.

IBM's Watson is one such miracle.

HISTORY

In 2011, in a TV show “Jeopardy” IBM's Watson defeated the Jeopardy's champion Ken Jennings and Brad Rutter. This gave birth to IBM's super computer Watson called after its founder Thomas J Watson (Best, 2011).

When the duel was finished, Watson had \$77,147 resulting in a loss of \$21,600 and \$24,000 to Rutter and Jennings respectively.

This was the victory of a machine over two humans and a birth of Artificial Intelligence with learning capacity in real sense.

David Ferrucci, principal investigator of Watson DeepQA technology, said Watson could conduct self-assessments and learn.

JOURNEY TOWARDS MEDICAL SCIENCE

The Jeopardy game was over but IBMers were not out to rest. The mission to make it the best doctor in the world continued. This gave birth to IBM Watson Health Cloud. The team added the required information, checked for the results and modified it to give the best performance. Thousands of questions were asked and results checked if anything went wrong then it was corrected afterwards answers were given for which Watson has to ask the questions. Machine Learning enables questioning and answering models and also algorithms can be modified for better results.

In 2013 Watson used many textbooks, like PubMed and Medline and large number of records of different patients from Memorial Sloan Kettering. According to Forbes, 2013 605,000 medical symptoms, 25,000 training cases, 2 million

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/ibms-watson-analytics-for-health-care/164580

Related Content

SCEF: A Model for Prevention of DDoS Attacks From the Cloud

Ganeshayya Ishwarayya Shidaganti, Amogh Shreedhar Inamdar, Sindhuja V. Rai and Anagha M. Rajeev (2020). *International Journal of Cloud Applications and Computing* (pp. 67-80).

www.irma-international.org/article/scef-a-model-for-prevention-of-ddos-attacks-from-the-cloud/256865

Cloud Computing in Higher Education: Opportunities and Issues

P. Sasikala (2011). *International Journal of Cloud Applications and Computing* (pp. 1-13).

www.irma-international.org/article/cloud-computing-higher-education/54716

Analysis of a Learning Management System by Using Google Analytics: A Case Study From Turkey

Zeki Özen, Elif Kartaland Ikim Ecem Emre (2018). *Technology Management in Organizational and Societal Contexts* (pp. 198-220).

www.irma-international.org/chapter/analysis-of-a-learning-management-system-by-using-google-analytics/197221

Revisiting Fully Homomorphic Encryption Schemes for Privacy-Preserving Computing

Nimish Jain, Aswani Kumar Aswani Cherukuri and Firuz Kamalov (2024). *Emerging Technologies and Security in Cloud Computing* (pp. 276-294).

www.irma-international.org/chapter/revisiting-fully-homomorphic-encryption-schemes-for-privacy-preserving-computing/339405

On the Exploration of Equal Length Cellular Automata Rules Targeting a MapReduce Design in Cloud

Arnab Mitra, Anirban Kundu, Matangini Chattopadhyay and Samiran Chattopadhyay (2018). *International Journal of Cloud Applications and Computing* (pp. 1-26).

www.irma-international.org/article/on-the-exploration-of-equal-length-cellular-automata-rules-targeting-a-mapreduce-design-in-cloud/202387