

Big Data Analytics in Healthcare Systems

Ms. Fazilat Parkar¹, Mrs. Ashwini Sheth², Mrs. Akshata Chavan³

Student, M.Sc.IT.¹

Assistant Professor, Department of I.T.^{2,3}

I.C.S. College, Khed, Ratnagiri

Abstract: *Big Data analytics has had a significant impact on the healthcare industry in recent years, allowing for improved patient outcomes, personalized care, and cost-reduction. This paper examines the role of healthcare data, its applications and benefits, and the technological advances made possible by big data, such as cloud computing and stream processing. Additionally, it highlights the challenges and opportunities that Big Data analytics can bring to health care systems. Ultimately, Big Data analytics can help to improve clinical decision-making, personalized medicine, and overall healthcare outcomes.*

This paper looks at how Big Data analytics impacts the healthcare system, the applications and benefits of analysing big data, the challenges of using big data in healthcare, and how Big Data can affect healthcare policy, resource allocation, and how to make healthcare delivery processes more efficient. It also looks at the ethical issues that Big Data can bring to the healthcare industry, like responsible data governance, patient consent, and transparency. Overall, it's a great read that will give you a better understanding of how Big Data can change healthcare.

Keywords: Big data, Big Data analytics, Healthcare, Personalized medicine, Precision medicine, Cloud computing, Stream processing

REFERENCES

- [1]. I.Andreu-Perez, J., Poon, C. C., Merrifield, R. D., Wong, S. T. kaj Yang, G. Z. (2015). Terveydelle on big data. *IEEE J Biomed Health Inform*, 19(4), 1193-1208.
- [2]. Belle , A. , Thiagarajan , R. , Soroushmehr , S. M. , Navidi , F. , Beard , D. A. and Najarian , K. (2015). Suurandmete analüüs tervishoius. *BioMed Research International*, 2015.
- [3]. Capobianco, E. (2017). A systems and precision medicine approach to diabetes heterogeneity: a big data perspective. *Clinical and Translational Medicine*, 6(1), 23.
- [4]. Cunha, J., Silva, C. and Antunes, M. (2015). Managing Health Twitter Big Bata with Hadoop Framework. *Procedural Computing*, 64, 425-431.
- [5]. De Silva, D., Burstein, F., Jelinek, H.F. and Stranieri, A. (2015). Addressing the Complexity of Big Data Analytics in Healthcare: The Case of Diabetes Crime. *Australasian Journal of Information Systems*, 19, S99-S115.
- [6]. Ding, W., Lin, C.T., Chen, S., Zhang, X., and Hu, B. (2018). Multiagent consensus-MapReduce-based feature reduction using co-evolutionary quantum PSO for big data applications. *Neurocomputing*, 272, 136-153.
- [7]. Farid, D. M., Nowe, A., & Manderick, B. (2016, December). A feature clustering method for clustering high-dimensional genomic big data. In *Future Technologies Conference (FTC)* (pp. 260268). IEEE.
- [8]. Hernandez, I. and Zhang, Y. (2017). Using predictive analytics and big data to optimize drug outcomes. *American Journal of Health-System Pharmacy*, 74 (18), 1494-1500.
- [9]. Istephan, S. ja Siadat, M. R. (2015, novembris). An Extensible Query Framework for Unstructured Medical Data - A Grand Data Approach. En *Data Mining Workshop (ICDMW)*, 2015 IEEE Internacia Konferenco pri (pp 455-462). IEEE.
- [10]. Knoppers, B. M., and Thorogood, A. M. (2017). Ethics and big data in health. *Nuna Opinion in Systematics*, 4, 53-57. <http://dx.doi.org/10.1037/0021-843X.111.1>
- [11]. Loai, A. T., Mehmood, R., Benkhelifa, E. and Song, H. (2016). Mobile Cloud Computing Model and Big Data Analytics for Healthcare Applications. *IEEE Access*, 4, 6171-6180.

- [12]. Mathew, P. S. and Pillai, A. S. (2015, March). Big data solutions in healthcare: issues and perspectives. *Innovations in Information, Embedded and Communication Systems (ICIIECS)*, 2015 International Conference (pp. 1-6). IEEE.
- [13]. Mendelson, D. (2017). Legal protection of personal health data in the age of big data - a proposal for a regulatory framework. *Ethics, Medicine and Public Health*, 3(1), 37-55.
- [14]. Murphy, S.N., Avillach, P., Bellazzi, R., Phillips, L., Gabetta, M., Eran, A. and Kohane, I.S. (2017). Combining clinical and genomic questions using i2b2-Tri methods. *PloS one*, 12(4), e0172187.
- [15]. Ni, J., Chen, Y., Sha, J. and Zhang, M. (2015, November). Hadoop-based distributed computing algorithms for healthcare and clinical data processing. *In Online Computing for Science and Engineering (ICICSE)*, 2015 Eighth International Conference (pp. 188-193). IEEE.
- [16]. Olaronke, I. and Oluwaseun, O. (2016, December). Big data in healthcare: future perspectives, challenges and solutions. *In Future Technologies Conference (FTC)* (pp. 1152-1157). IEEE.
- [17]. Özdemir, V. ja Hekim, N. (2018). The Emergence of Industry 5.0: Making Sense of Big Data with Artificial Intelligence, the Internet of Things and Next Generation Technology Policy. *Omics: Journal of Integrative Biology*, 22(1), 65-76.
- [18]. Panda, M., Ali, S.M. and Panda, S. K. (2017, March). Big data in healthcare: a mobile solution. *In Big Data Analytics and Computational Intelligence (ICBDAC)*, 2017 International Conference (pp. 149-152). IEEE.
- [19]. Pramanik, M.I., Lau, R.Y., Demirkan, H. kaj Azad, M.S. A.K. (2017). Smart Health: Granda Datumo Ebligita Smart Cities Health Paradigm. *Expert Systems with Applications*, 87, 370-383. and ends with a specific patient. *Journal of Evaluation in Clinical Practice*, 21(6)