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A Theoretical Framework for Big Data Analytics Based on Computational Intelligent Algorithms with the Potential to Reduce Energy Consumption

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Abstract
Within the framework of big data, energy issues are highly significant. Despite the significance of energy, theoretical studies focusing primarily on the issue of energy within big data analytics in relation to computational intelligent algorithms are scarce. The purpose of this study is to explore the theoretical aspects of energy issues in big data analytics in relation to computational intelligent algorithms since this is critical in exploring the emperica aspects of big data. In this chapter, we present a theoretical study of energy issues related to applications of computational intelligent algorithms in big data analytics. This work highlights that big data analytics using computational intelligent algorithms generates a very high amount of energy, especially during the training phase. The transmission of big data between service providers, users and data centres emits carbon dioxide as a result of high power consumption. This chapter proposes a theoretical framework for big data analytics using computational intelligent algorithms that has the potential to reduce energy consumption and enhance performance. We suggest that researchers should focus more attention on the issue of energy within big data analytics in relation to computational intelligent algorithms, before this becomes a widespread and urgent problem. © 2019, Springer Nature Switzerland AG.

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