

# An Overview of Data Science and Analytics from the Perspective of Data-Driven Smart Computing, Decision-Making, and Applications

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**Abstract:** *In the era of the Fourth Industrial Revolution (Industry 4.0 or 4IR), the digital world has a vast amount of data, including internet of things (IoT) data, business data, health data, mobile data, urban data, security data, and more. The data can be analyzed to derive valuable knowledge or insights, which can then be utilized for intelligent decision-making in many application fields. In the field of data science, the utilization of advanced analytics techniques such as machine learning modeling can yield actionable insights and enhance understanding of data. This enables the automation and intelligence of the computing process. This paper provides a thorough examination of "Data Science," encompassing a range of sophisticated analytical techniques that can be utilized to improve the intelligence and functionality of an application by making intelligent decisions in various situations. In addition, we analyze and condense ten possible practical areas of application, such as business, healthcare, cybersecurity, urban and rural data science, and others. This analysis is based on the consideration of data-driven intelligent computing and decision-making. Therefore, we now emphasize the difficulties and possible areas of research that fall within the scope of our study. This document seeks to provide a comprehensive resource on data science and advanced analytics for researchers, decision-makers, and application developers. It specifically focuses on data-driven solutions for real-world challenges.*

**Keywords:** Data science, Advanced analytics, Machine learning, Deep learning, Smart computing, Decision-making, Predictive analytics, Applications of data science