# Guest Editorial Preface

# Special Issue on Information Management of Using Machine Learning and Data Science Analysis for COVID-19

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## INTRODUCTION

COVID-19 has become the greatest challenge human beings have encountered since World War 2 (WW2). COVID-19 itself is highly infectious and the speed at which it can mutate is rapid and in different varieties, with reported six strands of active coronaviruses widely spread worldwide. It has infected several millions of the population worldwide. In early March 2020, the total number of infected cases was still not reaching 100,000 (WHO, 2020). The challenge itself is not only causing rapidly increased numbers of infected cases but also death and the way we live, such as social distancing. This has caused a lack of medical resources and a healthcare crisis in fighting against the infection before the development of vaccines and drugs. Other economic and social problems are common, such as job loss, insecurity, lack of movement, increases in crimes, and increases in fighting limited resources and has been seen (Ecke, 2020). In addition to this, the computing services for the identification and development of drugs are also challenging. In such cases, the quality and the quantity of the collected data play a major role which using cloud computing architectures (Chang, 2014; Hosseinian-Far et al., 2018). The Internet of Things technology combined with Artificial Intelligence techniques may provide good solutions to this health-oriented problem (Vaishya et al., 2017).

Useful recommendations for those urgent needs are required globally to understand how to tackle this challenge. Scientists have a crucial role, not only in research and development, but also provide positive impacts on society. In terms of Machine Learning and Data Science research, scientists can offer insights, new discoveries and pioneering recommendations, which may offer positive impacts and findings on the causes, cure and analysis of treatment. We need better analysis of the past, current and future, including review, analysis and information management. In this special issue, we seek unpublished and high-quality work based on the review, analysis and information management of Machine Learning and Data Science findings. Best paper winners and top authors from IoTBDS 2021, COMPLEXIS 2021, FEMIB 2021 and IIoTBDSC 2021 will also be invited.

## OBJECTIVES

It has already been widely recognized that blending Machine Learning and Data Science can help to analyze high-quality work, which can be applied to statistical analysis, predictive modeling and decision-making. We seek high-quality review, statistical and data analysis and also high-level recommendation papers. In general, information management of Machine Learning and Data Science

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## PAPER SELECTION

Arhipov et al. (2022) analyze how the behavior of people changed in various phases of the COVID-19 pandemic and how these changes could affect the economic activity in municipalities, taking into consideration significant changes in people's habits and employment conditions. Authors categorize the 43 newly formed municipalities into similar groups. They conclude that the aggregated indicators significantly impact the division of municipalities: inhabitants, dynamics indicator, economic development level, and mobile phone activity on workdays, holidays, and weekends.

The paper by Alankar et al. (2022) investigates the impact of the COVID-19 pandemic on global finance and wealth. The paper analyses the impact of this economic loss on several business sectors in light of digital business practices. This paper presents the importance of digital business practices and how different sectors have been affected in terms of economic loss during this pandemic outbreak.

A transmission and propagation model for Covid-19 transmission has been developed by Li and Sun (2022). It is based on the SCUIR transmission model and was tested on actual data from China and the US, and the simulations show a good agreement with the real data. The accuracy of this model is higher than other models (SIR and SEIR), and it can be used to predict the epidemic spread of disease in the future.

A paper by Yu et al. (2022) shows a method of how to predict COVID-19 infections with the use of Artificial Intelligence (AI). A deep-learning hybrid model was developed to learn the characteristics of a COVID infection from blood samples. Several approaches using CNN in combination with different models were examined. The results are encouraging and show that these models significantly improve the quality of classifying a COVID-19 infection.

In their paper, Tang and Zhong (2022) investigate the use of evolutionary game theory to deal with the cost and benefits of strategies dealing with the COVID-19 pandemic. The paper reveals that local people often effectively contribute to more efficient pandemic management through collaboration with government departments when surveillance measures are applied.

Five papers have been selected based on rigorous review processes. We thank the authors for contributing excellent research outputs to our special issues and reviewers who provide high-quality reviews. We are grateful to the Editor-in-Chief and the publisher for giving us this opportunity and we will be pleased to serve the community again.

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