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EDITORIAL

Dear Researchers,

We are thrilled to present the first issue of the *Journal of Data Applications*, a prestigious journal dedicated to advancing the understanding and application of data in various domains such as statistics, artificial intelligence, machine learning, deep learning, and data mining. As the field of data science continues to evolve at an unprecedented pace, this journal aims to serve as a central hub for researchers, practitioners, and enthusiasts to share their insights, discoveries, and innovations. The *Journal of Data Applications* looks to contribute to the development of applied data science studies that aim to obtain meaningful information from data and reveal hidden patterns and designs in data, thus contributing to the development of studies in this field.

In this inaugural issue, we present six articles that highlight the diversity and breadth of data applications across different sectors. These articles have undergone a rigorous peer-review process and been selected based on their significance, originality, and contribution to the field. Each article showcases unique perspectives and approaches, underscoring the multidisciplinary nature of data science and its real-world implications.

The first article, “Istanbul’s Community Mobility Changes During the COVID-19 Pandemic: A Spatial Analysis” by Ahmet Okan Arık and Gülşüm Çiğdem Çavdaroğlu, explores the impact the COVID-19 pandemic has had on community mobility in Istanbul, Türkiye. The study investigates the changes in mobility patterns in different locations such as parks, transit stations, workplaces, grocery stores, pharmacies, and residential areas in Istanbul, examining both the spatial and non-spatial independent variables that influenced these mobility changes. The study finds that variables such as altitude had no overall impact on mobility changes, whereas latitude, longitude, and proximity to the sea did affect mobility patterns.

The second article is “Modeling Automobile Sales in Turkey with Regression-Based Machine Learning Algorithms,” authored by Merve Babaoğlu, Ahmet Coşkunçay, and Tolga Aydın, and delves into the realm of automotive sales forecasting. The authors focus on demand forecasting in the automobile sector, and their study examines 10 independent variables, including gross domestic product, sector confidence index, capital expenditures, household consumption expenditures, inflation rate, consumer confidence index, deposit percentages, and prices of oil, gold, and the dollar. Various predictive models, including linear regression, decision tree, random forest, ridge, AdaBoost, elastic net, and lasso regression algorithms, are applied to construct a sales forecast model. The study aims to provide an approach to allow industries that are directly or indirectly influenced by automotive sales to gain foresight and make informed decisions in their respective sectors.

The third article, “The Ethical Dimensions of Artificial Intelligence” by Gökçe Karahan Adalı, discusses the influence of artificial intelligence (AI) on various aspects of our lives and highlights its potential to enhance productivity and decision-making processes. However, the study emphasizes that ethical considerations will be inevitable alongside these technical advancements. Like any technology, AI brings both benefits and risks. One significant aspect is machine ethics, which aims to create machines that adhere to ethical frameworks. The widespread use of AI has raised ethical dilemmas and concerns, leading to the need for controlling the behavior of intelligent machines within certain ethical



frameworks. The article provides an overview of AI, introduces fundamental concepts, and outlines strategies and key themes in AI ethics. It contributes to the ongoing debate on the ethical use of AI by discussing issues such as the legal identity of autonomous machines, legal problems related to AI, and proposed solutions with examples of applications.

The fourth article, “An Application with Python Software for the Classification of Chemical Data” authored by Oğuz Akpolat and Gonca Ertürk, presents the use of data mining algorithms in the field of chemistry to analyze and predict the relationships between various parameters measured in wastewater treatment. The focus is on wastewater treatment processes that aim to eliminate biodegradable organic matter, suspended solids, harmful substances, nitrogen and phosphorus compounds, and pathogens. The monitoring and control of these processes relies on continuous measurement of wastewater and activated sludge characteristics. Parameters such as biochemical oxygen demand (BOD5), chemical oxygen demand (COD), total organic carbon (TOC), and dissolved oxygen (DO) are crucial for assessing wastewater properties. The study aims to establish mathematical associations between BOD5 and other parameters to estimate BOD5 quickly.

The fifth article, “A Study of Ransomware, Understanding and Protection” discusses the escalating threat of ransomware to computer systems and data and presents a comprehensive study on the subject. The research aims to analyze the impact of ransomware attacks on organizations and individuals while evaluating existing countermeasures. It includes a review of literature and security provider sources, as well as analysis of real-world ransomware incidents, revealing the increasing complexity and broad targeting of such attacks, leading to significant financial and reputational risks for victims. The research emphasizes that traditional security measures might not be sufficient, advocating the use of Artificial Intelligence and a multi-layered defense approach to effectively mitigate ransomware incidents.

In the sixth and the final article, “A Comparative Assessment of Frequentist Forecasting Models: Evidence From S&P 500 Pharmaceutical Index”, the authors utilize ARIMA, GARCH, and Neural Network Autoregression (NNAR) to forecast the S&P 500 Pharma Stock Index. They aim to determine the most accurate forecasting method based on Mean Average Forecasting Error (MAFE). The research provides valuable insights for health and financial econometricians focusing on pharmaceutical indexes and investment companies using forecasting methods to make investment decisions.

The *Journal of Data Applications* can be accessed online at IUPress and DergiPark. Our journal can also be followed on LinkedIn. We express our gratitude to all the authors who have selected our journal as the platform to publish their scientific research. We extend our appreciation to the reviewers who have accepted our referee invitations and provided their valuable feedback. Our heartfelt thanks also go to our readers, IU Press, and DergiPark for their interest in our journal and their dedicated efforts.

We hope you find this issue insightful and look forward to receiving your submissions for future issues of the *Journal of Data Applications*.

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