

## ARTIFICIAL INTELLIGENCE AND ESG INVESTING: AN OVERVIEW

Jianglin Dennis Ding, Roger Williams University, RI, U.S.A.

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### ABSTRACT

*This paper explores the intersection of artificial intelligence (AI) and Environmental, Social, and Governance (ESG) investing, examining how AI innovations are transforming ESG data management, analysis, and investment strategies. By conducting a comprehensive review of academic literature, industry reports, and market data, the study identifies key areas where AI enhances sustainability in finance, improving data accuracy, transparency, and decision-making. Despite challenges such as data privacy, algorithmic bias, and regulatory compliance, AI-driven tools show significant potential in advancing ESG goals and promoting sustainable finance. The insights offered can guide financial institutions, investors, and policymakers in leveraging AI to support global sustainability efforts, contributing to environmental preservation, social equity, and robust governance practices.*

**Keywords:** ESG investing, sustainable finance, Artificial Intelligence (AI), Machine Learning, ESG score

### 1. INTRODUCTION

The intersection of artificial intelligence (AI) and Environmental, Social, and Governance (ESG) criteria represents a significant advancement in sustainable finance. ESG investing has become a focal point for investors, driven by growing awareness of the environmental, social, and ethical implications of corporate actions. Simultaneously, AI has revolutionized various sectors by enhancing data processing, predictive analytics, and decision-making capabilities. Integrating AI into ESG assessments offers the potential to significantly improve the accuracy, transparency, and reliability of ESG scores.

Despite the rapid growth and significant advancements in both AI and ESG investing, there remains a substantial gap in comprehensive research that explores the intersection and integration of these two fields. The majority of existing literature tends to focus on the individual impacts and applications of AI and ESG separately. Studies on AI primarily highlight its capabilities in data analysis, predictive modeling, and automation, emphasizing its transformative effects on various sectors including finance. On the other hand, research on ESG investing predominantly examines the incorporation of sustainability factors into investment strategies, assessing the impact of these factors on financial performance and risk management.

However, there is a notable scarcity of in-depth studies that investigate the synergistic potential of combining AI with ESG criteria to enhance sustainable finance practices. This lack of integrated research leaves a critical gap in understanding how AI technologies can be harnessed to improve the accuracy, reliability, and efficiency of ESG assessments and investment strategies. Addressing this research gap is crucial for several reasons. Firstly, the integration of AI and ESG has the potential to revolutionize the way investors assess and manage sustainability risks and opportunities, leading to more informed and impactful investment decisions. Secondly, understanding the combined effects of AI and ESG can drive innovation in sustainable finance, promoting the development of advanced tools and methodologies that support global sustainability goals. Lastly, comprehensive research in this area can provide valuable insights for policymakers, financial institutions, and investors, guiding the formulation of policies and practices that foster responsible and sustainable investing.

Therefore, this paper aims to fill this gap by providing a detailed overview of the ways in which AI can enhance ESG scoring and investment strategies. It explores the potential applications, benefits, and challenges of integrating AI into ESG assessments, offering a holistic view of the current landscape and future possibilities. By addressing this critical research gap, the paper seeks to contribute to both