AI-Powered Renewable Energy Solutions

Chris Edwards
PhD
University of Lisbon
Alameda da Universidade, 1649-004 Lisboa, Portugal

Quinn Clark
Dr.
National Technical University of Athens
9 Iroon Polytechneiou St, Zografou 157 80, Greece

Morgan Robinson
Prof.
University of Chile
Av. Libertador Bernardo O'Higgins 1058, Santiago, Chile

Abstract. This paper examines the role of artificial intelligence in optimizing renewable energy solutions. AI technologies are being used to predict energy production, manage resources, and improve grid efficiency. Our research highlights the integration of machine learning algorithms in solar and wind energy systems, demonstrating significant improvements in efficiency and cost-effectiveness. We propose strategies for further AI integration to support global renewable energy initiatives.

Keywords: Renewable Energy, AI, Machine Learning, Grid Efficiency, Sustainability

Introduction

Artificial intelligence is playing an increasingly vital role in the optimization of renewable energy systems. This paper explores how AI technologies are being applied to enhance the efficiency of renewable energy sources such as solar and wind. By integrating machine learning algorithms, we can predict energy production, manage resources more effectively, and improve grid efficiency. Our research presents case studies of successful AI applications in renewable energy and offers strategies for further integration to support global sustainability efforts.

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