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Photovoltaic Systems Technology

Chapter 7

Intelligent Modeling and Estimation of Solar Radiation Data Using Artificial Intelligence

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Summary

Artificial Intelligence (AI) is currently being employed in a variety of fields, including engineering, economics, medicine, military, and marine. Complex systems have also been intelligently modeled, identified, optimized, predicted, forecasted, and controlled using AI. Our goal is to provide an overview of intelligent simulation models for solar power and photovoltaic (PV) forecasting. The works considered in this chapter demonstrate the benefits of employing AI-based photovoltaic data forecasting in distant places where almost no equipment exists to monitor this information. Moreover, they demonstrated the potential of AI as a design tool for solar radiation data prediction and forecasting, particularly parameters related to photovoltaic (PV) systems. The performance and sizing are heavily influenced by solar radiation. This chapter provides an overview of the current and promising uses of artificial intelligence in the area of photovoltaic systems. It covers a wide variety of issues and provides a complete overview of the field.

References

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