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Integrating Solar Photovoltaic Systems into the Grid: An Overview of AI Application

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Abstract: The photovoltaic (PV) system business is seeing an increase in the number of applications for artificial intelligence (AI) as a result of the expansion of powerful computer resources, helpful tools, and an explosion of data. It has been shown that the methods that are currently used for a variety of jobs in the solar photovoltaic (PV) industry, such as design, forecasting, control, and maintenance, provide results that are not totally accurate. Additionally, artificial intelligence (AI) has enhanced the accuracy and precision of these professions, which has allowed them to become a topic of discussion at the present time. Within the context of this specific paradigm, the objective of this study is to investigate the impact that AI techniques have had on the PV value chain. In the course of the study, a cataloging of the current artificial intelligence systems, the compilation of a list of prospective applications of AI in the future, and an analysis of the benefits and drawbacks of these systems in contrast to more conventional approaches are all included..

Keywords: AI, solar systems, optimum size, irradiance prediction, condition tracking, transition management, dependability

