

International Conference on **Artificial Intelligence and Cloud Computing (ICAICC-2025)**

Conference Proceedings

May 10, 2025 (Virtual)

Artificial Intelligence in Democratizing Access to Renewable Energy: Machine Learning Models for Community Engagement and Equity

Venkata Narasareddy Annapareddy

Sr Enterprise Application Developer, University of Maryland, Baltimore, USA

Artificial Intelligence (AI) is revolutionizing the renewable energy sector by enhancing efficiency, accessibility, and equity. This paper explores how Machine Learning (ML) models can democratize access to renewable energy by fostering community engagement and ensuring energy equity. AI-driven predictive analytics can optimize energy distribution, identify underserved communities, and personalize renewable energy solutions to local needs. Moreover, ML-powered platforms can facilitate community participation by providing insights into energy consumption, forecasting demand, and recommending sustainable practices. By integrating AI with renewable energy policies, we can bridge socio-economic gaps, promote inclusivity, and empower marginalized populations with clean energy solutions. This study highlights the role of AI in advancing a just energy transition, emphasizing ethical considerations and the need for transparent, community-driven AI applications.