عنوان مقاله:

Improving the Cyber-Physical Security of Telecommunication Infrastructure in Smart Grids with a Machine Learning Approach

محل انتشار:

اولین کنفرانس بین المللی و هفتمین کنفرانس ملی مهندسی برق و سیستم های هوشمند (سال: 1402)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

The smart grid system is one of the latest technologies in the world today, resulting from the efforts and endeavors of experts to modernize power generation and distributionnetworks. This article aims to achieve a comprehensive intelligent solution to ensure the security of the ingenious grid system using resilient cyber security based on the collaborative participation of stakeholders in the intelligent combination of communication networks. This paper presents a proposed method that combines classifications through two approaches : voting and weighted aggregation of learner opinions, demonstrating that the weighted combination yields superior results. The evaluations utilize online power consumption profile data for the city of New York and are conducted in MATPOWER. The assessments simulate a communication link failure scenario in the power network, and based on the reported results, the proposed method outperforms other approaches. The obtained results indicate that integrating cyber security methods, coupled with intelligent techniques, contributes to the adaptability and resilience of smart grid systems. This integration proves indispensable for establishing a scalable and flexible cyber security system in extensive and heterogeneous telecommunication networks and smart grid systems.

کلمات کلیدی:

Deep reinforcement learning, False data injection attack, One class learning, Smart grid system

لینک ثابت مقاله در پایگاه سیویلیکا: