**An Overview of the Feasibility of Leveraging Deep Learning for Environmental Radioactivity: Opportunities, Challenges, and Interdisciplinary Solutions**

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Developments in science and specifically in the environmental radioactivity research have been solved lots of problems and limitations, however, it also created new challenges from detection to quantification and from distinguishing data to interpretation of radioactive contaminants in complex environmental matrices. One of these issues is about the prevailing methods, while effective in themselves, have limitations in terms of speed, accuracy, scalability, and sensitivity in the context of huge datasets that is used for continuous monitoring and comprehensive radiological surveys. The application of using artificial intelligent machines as the state of art of solution, relevantly deep learning models, could became a potential tool to help solving this problem in a revolutionary way. The deep learning techniques with such endless capability in patterning recognition, anomaly detection, and predictive modeling, might help us to enable an accurate and cheap option for monitoring and analyzing environmental radioactivity. In this paper we tried to emphasis the possibility and the potential of utilization of deep learning machines for improving accuracy of data gathering, expedite analysis of data, and enable better decision-making. Reviewing prominent methodological advancements by presenting the successful relevant cases of using artificial intelligent as well as outlines new research directions to capitalize on the full potential of deep learning techniques in the field of environmental radioactivity research. It is aimed to highlight the getting benefits from interdisciplinary research to application of it in solving for new challenges. Additionally, the possibility of using the AI in environmental sustainability, specially regarding the challenges related to environmental radioactivity has been discussed for it limitations and opportunities.

**Keywords:** Environmental Radioactivity; Deep Learning; Sustainability;