Contribution ID: **1**   Type: **not specified**

Leveraging Artificial Intelligence for Insider Threat Detection in Radiological Facilities in Ghana

Insider threats pose significant risks to radiological facilities, particularly in regions like Ghana where digital monitoring systems and advanced threat detection infrastructure are still evolving. Traditional security measures often struggle to detect sophisticated insider activities, which may involve authorized personnel exploiting legitimate access for malicious or negligent purposes. The integration of Artificial Intelligence (AI) and Machine Learning (ML) offers promising avenues to enhance insider threat detection and overall security in these high-stakes environments.

This paper explores the potential application of AI/ML technologies in Ghana's radiological facilities, focusing on the analysis of access control logs, Closed-Circuit Television (CCTV) footage, and personnel behavior patterns to identify anomalies indicative of insider threats. It proposes a contextualized framework for AI/ML deployment, emphasizing a layered approach that fuses data from physical, digital, and behavioral domains to enable real-time threat detection and response. The paper also addresses critical challenges such as data privacy, algorithmic bias, infrastructure limitations, and the need for human oversight. It concludes with recommendations for a phased implementation strategy, supported by inter-agency collaboration and capacity building, to ensure ethical, effective, and sustainable adoption of AI-driven security solutions in Ghana's radiological landscape.

Author: AGALGA, Raymond (GHANA ATOMIC ENERGY COMMISSION)

Co-authors: Dr CHARLES, Daniel Frederick (Ghana Atomic Energy Commission); Dr SURAJ, Issaka Sam (Ghana Atomic Energy Commission); Dr AMOAH, Paul Attah (Ghana Atomic Energy Commission)

Presenter: AGALGA, Raymond (GHANA ATOMIC ENERGY COMMISSION)