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Real-time radionuclides detection using artificial intelligence

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The objective of this work is to detect and identify in real-time the radionuclides contained in gamma ray spectrometric data acquired during expeditions in outdoor scenarios. The algorithms are based on artificial intelligence techniques, such as Neural Networks and Deep Learning. The gamma ray spectrometric data can be simulated or acquired by a Micro-sized Gamma Spectrometer, based on a CdZnTe (CZT), with sources in the laboratory or in a real scenario. In outdoor scenarios, the CZT is synchronized with a GPS receiver. The radionuclides must be identified and georeferenced.

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