Corrigendum: Particle Filter Based Range Search Approach for Localization of Radioactive Materials

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A Corrigendum on

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TEXT CORRECTION

In the original article, there were errors: In **Equation 1** small "i" is typed instead of capital "I," subscript of symbols and italic, use of ";" instead of ",", missing $B(x, y)$, and reference (**Chin et al., 2008**) instead of (**Rao et al., 2008**).

A correction has been made to Section 3: **Proposed Localization Approach**, sub-section *3.1 Problem Formulation*, Paragraph 1:

3.1 Problem Formulation:

The localization of a point radiation source of unknown strength A_u expressed in the unit of micro-Curie (μCi) called the source rate will be considered. The source is located at an unknown location (x_u, y_u). The source gives a radiation intensity of

$$I(p) = I(x, y) = \frac{A_u \times E \times 2.22 \times 10^6}{(x_u - x)^2 + (y_u - y)^2} \tag{1}$$

(expressed in counts per minute or CPM) when measured by a sensor at point $p = (x, y)$, where E is an efficiency constant unique to the sensor. The radiation count induced by the source and observed at the sensor i per unit time is a Poisson random variable with parameter $\lambda = I(x_i, y_i)$, not accounting for the background radiation $B(x, y)$ (Rao et al., 2008) denoting the background radiation strength at (x, y) expressed in CPM, called the background rate. The radiation count measurement (due to the background radiation) at a sensor i located at (x_i, y_i) is given by the Poisson random variable with parameter $B(x_i, y_i)$. For comparison purposes, the radiation model, actual measurements, and calibration process (Rao et al., 2008) are followed.

The correct citation of the reference Henry E. Baidoo-Williams (Bai et al., 2016) is Henry E. Baidoo-Williams (Baidoo-Williams, 2016).

The sampling unit contains two random generators implemented using Hybrid Cellular Automata (CA) CA 150 and CA 90 rules (Abd el-Hamid, 2008).

The average standard deviation of measurements of ref. (Abd el-Hamid, 2015) is scaled and used in the implementation.

The authors apologize for these errors and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

REFERENCES

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