

# Emerging Diseases, Outbreaks & Case Studies &

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## **Foreign circular element detection in chest X-rays for effective automated pulmonary abnormality screening**

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In automated chest X-ray screening (to detect pulmonary abnormality: Tuberculosis (TB), for instance), the presence of foreign element such as buttons and medical devices hinders its performance. In this paper, using digital chest radiographs, the authors present a new technique to detect circular foreign element, within the lung regions. They first compute edge map by using several different edge detection algorithms, which is followed by morphological operations

for potential candidate selection. These candidates are then confirmed by using circular Hough transform (CHT). In their test, the authors have achieved precision, recall, and F1 score of 96%, 90%, and 92%, respectively with lung segmentation. Compared to state-of-the-art work, their technique excels performance in terms of both detection accuracy and computational time.

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