

# Spotting the elephant not in the room

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An automated thermal detection system that can discern wild elephants from background and other animals in infrared images could save lives in parts of the world where the animals roam free and often enter villages and other human habitation, according to research published in the *International Journal of Electronic Security and Digital Forensics*.

Siva Mangai and colleagues at Karunya University, in Coimbatore, Tamil Nadu, India, explain how encounters between humans and [elephants](#) is a critical safety issue in the Western Ghats region of Tamil Nadu. "The movement of [wild elephants](#) crossing the forest borders and the preventive measures taken causes damage to the lives of both people and elephants," the team explains. They suggest that automated processing of infrared images from cameras placed at strategic locations might provide an early-warning system and reduce such encounters to the mutual benefit of both elephants and people.

However, object recognition remains a challenging task. The team has now developed a clustering-based image segmentation approach for accurate elephant recognition in [infrared images](#). Segmentation is a process of grouping a set of objects into segments of similar characteristics. It has been extensively used in many areas, such as statistics, signal processing and pattern recognition, the team explains. The algorithm they have developed that uses this approach could serve as the basis for developing a very large scale integration (VLSI)-based system to detect elephants so that they can be safely prevented from crossing forest borders and entering villages.

Tests with images of elephants, horses, bears, cattle and other animals likely to be in the forest gave a recognition rate of almost 95 percent. The few false positives would be offset by lives and property saved from wild elephants entering a village.

**More information:** Mangai, N.M.S., Vinod, S.T. and Chandy, D.A. (2015) 'Recognition of elephants in infrared images using clustering-based image segmentation', *Int. J. Electronic Security and Digital Forensics*, Vol. 7, No. 3, pp.234-244.

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