

Automated Methods to Identify Snake Species in Sri Lanka: A Review

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Snake bites in Sri Lanka cause death to nearly 100 people each year. Among the many reasons for this condition is the people's inability to identify the snake type which prevents administering the appropriate anti-venom treatment. Misidentification of snakes also causes threats to the existence of harmless snakes that contribute to the biodiversity of reptile species. A survey conducted with 223 participants to ascertain the ability of people to correctly identify the snake type when an image of a snake is available revealed that the majority out of the participants were unable to recognize the snake type. This paper presents a summary of the survey results and a review of various methods such as k-nearest neighbours (KNN), Support Vector Machines (SVM), Image Processing techniques, Probabilistic Graphical Models, Artificial Neural Networks (ANN), Convolutional Neural Networks (CNN) which are used to automatically identify objects, birds, marine species, humans and animals that could be applied for snake recognition to assist people in automatically identifying snake types which can contribute in reducing morbidity and mortality due to snake bites as well as to minimize the harm caused to innocent snake types. The review revealed that CNN methods have the capability to identify snake types.

Keywords: convolutional neural networks, automatic snake identification, snake bites, image classification