INFORMATICS INSTITUTE OF TECHNOLOGY

INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER

Identifying Snake Species Using Image Processing and Classification

A Dissertation by

Mr Rashmika Dolawatta

W1715401 / 2018837

Supervised by

Mrs Sulochana Rupasinghe

Submitted in partial fulfilment of the requirements for the BEng (Hons) Software Engineering degree at the University of Westminster.

April 2023

ABSTRACT

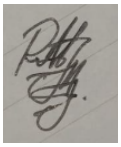
This project aims to develop a snake identification app using Convolutional Neural Network (CNN) and K-Nearest Neighbors (KNN) classification techniques in Sri Lanka. The app focuses on identifying 23 snake species, encompassing both venomous and non-venomous snakes. The CNN model achieves an accuracy of approximately 85%, while the KNN model achieves an accuracy of around 77%. Sri Lanka is home to 108 snake species, with 58 of them being indigenous, accounting for nearly 50% of the total. Common perceptions regarding snakes often involve misconceptions, with many people believing that all snakes are dangerous. By providing an accurate and user-friendly app, this project aims to enhance snake identification knowledge and promote coexistence with these fascinating creatures.

DECLARATION

I confirm that this project report and all associated artifacts are original and solely my own work. It has not been previously submitted, nor is it currently being submitted for any degree program.

Full Name : Rashmika Thisaru Dolawatta

Reistration No : w1715401 / 2018837

Signature : 

Date : 11th of May 2022

ACKNOWLEDGMENT

I would like to express my deepest gratitude to all those who have contributed to the development of this snake identification app using CNN and KNN classification techniques in Sri Lanka. First and foremost, I extend my sincere appreciation to the team members and researchers who have collaborated on this project. Their dedication and hard work have been invaluable in achieving our goals. I am immensely thankful to the experts in the field of snake identification who provided their valuable insights and guidance throughout the development process. Their expertise and knowledge have significantly contributed to the accuracy and effectiveness of our CNN and KNN models.

I would also like to acknowledge the support and assistance received from wildlife