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Venomous Snake Detection

Snakes make up one of the most notorious creatures of our ecosystem. For generations, consistent across cultures from across the globe, they carry with them a negative reputation for their deadly bite. Often snakes are killed on sight, regardless of their danger to humans. What is often not taken into account is that under 20% of species are actually venomous. Despite negative connotations, snakes also are a critical part of the ecosystem. Instead of themselves being nuisances, they prey on insects and rodents who are much more likely to cause harm or carry disease. Regardless of benefits, snakes are still a creature to be wary of. In the United States alone, they contribute to 7,000-8,000 bites and 5 deaths annually.

The U.S. Fish and Wildlife service is seeking data scientists for the development of an educational tool that can be used to aid forest rangers, school children, and nature enthusiasts about snake safety. The mission: to develop a convolutional neural network that can accurately detect whether a snake is venomous or not based on a picture. To lead them in this effort, you must obtain a database of snake images to train the model on. This data must be organized based on the venomous and non venomous snake species found in the continental U.S. (Alaska and Hawaii have no venomous snakes.) Once the data is collected, use functions from libraries such as tensor flow to adequately process the images. Research a variety of pre-trained neural network models in which you can create your own top layer as a binary classifier. Build your model based on the training data and analyze the accuracy, f1-score, recall, and precision of the model based upon the test set. **Github Link:** https://github.com/henryduke2/CS2-Snake-CNN