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Canine Sleeping Posture Identification using Transfer Learning

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The ability to recognize different postures of any living creature is a prerequisite for getting an accurate idea about their mental and physical well-being. Dogs are the most friendly and social canine breeds that provide love and security for human companions being their best friend at all times. The present study aimed at paying the initiatives at exploring important information about the wellbeing of the dogs with their sleeping postures. The paper studies and compared the classification performance of three deep transfer learning algorithms: VGG16, xception, and ResNet50, and Convolutional Neural Network on a manually collected and augmented dataset of nearly 4000 images consisting of four different sleeping postures of dogs. Our model reveals that ResNet50 outperforms all other algorithms and achieved the highest accuracy of 87.35%. Overall, our finding would help disabled and special requirement dogs and their owners to identify canine's health conditions and requirements using the sleeping postures and provide a more comfortable and better life for them.

Keywords: *canines, transfer learning, CNN, augmented, classification performance*