**ABSTRACT**

Over the past thirty years, the pet industry has experienced major growth spikes and pet related services as industry giant is relatively new but it’s an exciting example of building market value via data analytics. Knowing the canine breed will allow pet owners to estimate if their pet at risk for a number of problems that come from breeding lifespan can also be affected by the breed itself. This research work aims to build breed classification model capable of identifying canine breeds based on its image using Convolutional Neural Networks. The canine image dataset consists of 8351 images labeled with 133 canine breed names as class labels. The number of images per breed ranges from 38 to 96. A basic CNN classifier without pre-training was built which achieved a testing accuracy rate of 47.42%. To further improve the performance, transfer learning techniques were employed. As a result, the CNN image classification model that was trained using pre-trained architecture achieved a testing accuracy rate of 84.97%.