**Training and Analyzing Intelligent Systems on CIFAR-100**

The purpose of this project was to design, train, and analyze three best performing neural network types on the CIFAR-100 image classification dataset. Those network types included building convolutional, artificial, and random forests using the tools available with TensorFlow, TFLearn, and SKLearn. This report shows the findings, successes and failures, the program process, and reflections from building the project and training those networks. For more information and details on the project itself, please refer to the README.md file included with the project supplied with this report or visit the hosted repository <https://github.com/itsjaboyd/cifar100-project> through GitHub.

**CIFAR-100 Dataset**

The CIFAR-10 dataset can be found and downloaded at <https://www.cs.toronto.edu/~kriz/cifar.html>. Quickly overviewing the dataset itself, CIFAR-100 consists of 100 classes containing 600 images each (500 training images and 100 testing images) for a total of 60,000 images. Those 100 classes are divided into 20 super-classes. Each image is labeled with its immediate and super classes. CIFAR-100 exists as a subset of the 80 Million Tiny Images dataset that serves as a major dataset to perform object image classification techniques on. The dataset has somewhat of a twin known as CIFAR-10 in a much tighter knit and closer identification realm, including just 10 classes with 6,000 images each instead. Some example images are given by the network below.

**Convolutional Neural Network**

My findings with CNN

**Artificial Neural Network**

My findings with ANN

**Random Forest** **Network**

Everything I tried/why I couldn’t make random forests work

**Project Reflection**

What I learned about time management and requirements gathering and estimating project times

**Conclusion**

Final words on the application of network types on cifar100