**INSTRUMENT RECOGNITION SYSTEM**

A musical instrument recognition system is a sought-after system in music recommendation algorithms. While there are several music recommendation services that utilize music information retrieval systems, such as Spotify and Pandora Radio, none of them make use of instrument detection. In this project we propose the use of Deep Convolutional Neural Networks (CNN), combined with a series of properly labeled musical data sets consisting of multiple instruments, single note attacks, and song samples to train a model to solve this problem. Our CNN Architecture was initially modeled after the architecture of Yoonchang Han’s 2016 paper *Deep convolutional neural networks for predominant instrument recognition in polyphonic music* which utilized a Visual Geometry Grouping inspired architecture*.*  Using the Han architecture as a base we look to expand the number of data sets used. We run several experiments on the combination of multiple datasets for training and testing. We also propose several changes in network architecture based on image recognition problems as well as different audio processing techniques to determine what is an optimal approach to solving the audio recognition problem of an inherently noisy audio source.