

Open Set Deep Networks

The motivation behind open set recognition is to address general object recognition i.e. there is a finite set of known objects in myriad unknown objects, combinations, and configuration - labeling something new, novel or unknown should always be a valid outcome. The deep network has produced significant gains for various visual recognition problems, leading to high impact academic and commercial applications. Recent work in deep networks highlighted that it is easy to generate images that humans would never classify as a particular object class, yet networks classify such images high confidence as that given class - the deep network is easily fooled with images human do not consider meaningful. A methodology to adapt deep networks for Open-set recognition, is by introducing a new model layer, OpenMax, which estimates the probability of an input being from an unknown class. A key element of estimating the unknown probability is adapting Meta-Recognition concepts to the activation patterns in the penultimate layer of the network. OpenMax allows rejection of “fooling” and unrelated open set images presented to the system

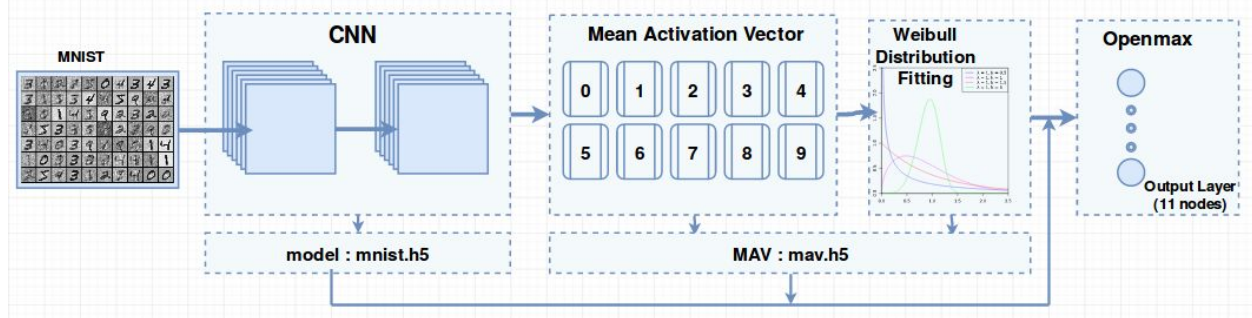


Figure 1. OpenMax Pipeline

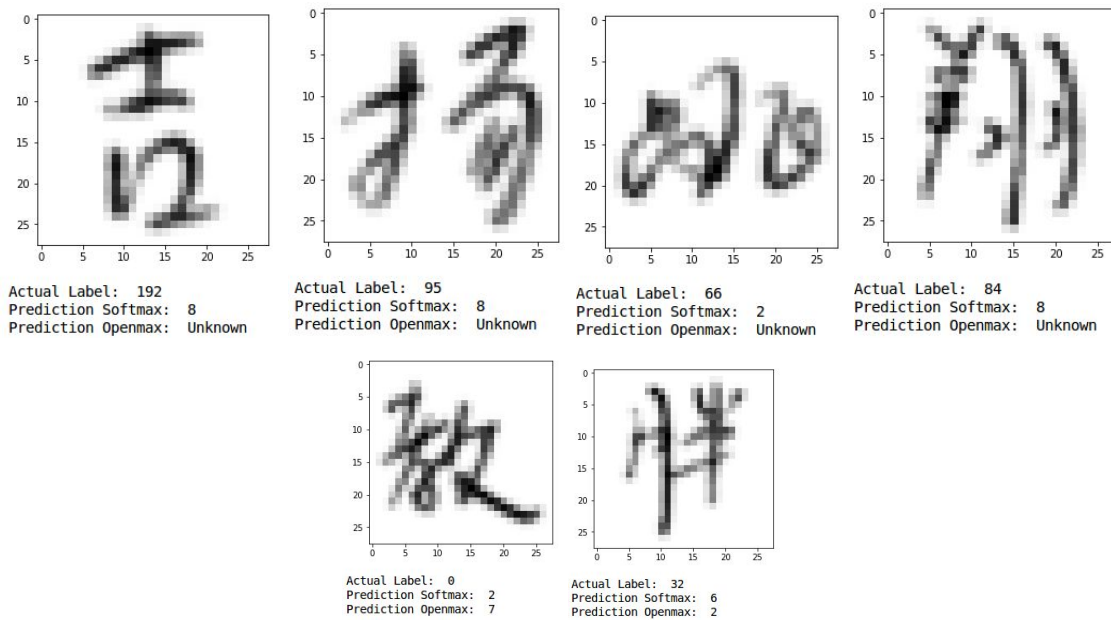


Figure 2. OpenMax evaluation on Chinese Dataset

