

Convolutional Neural Networks for Classifying Handwritten Digits

Favyen Bastani
fbastani@perennate.com

Zhengli Wang
wzl@mit.edu

December 5, 2014

1 Introduction

Image recognition algorithms have become pervasive: on Google Maps Street View, image recognition protects privacy by automatically blurring faces and license plate numbers [1]; robots use object recognition to carry out various tasks; meanwhile, individuals routinely employ optical character recognition and facial recognition. Over the last decade, image recognition approaches have changed dramatically. Initially, feature extraction techniques such as HOG and FAST were typically combined with support vector machine (SVM) classifiers, with research often focusing on selection of SVM kernels and defining features for specific applications. Recently, though, neural networks have received renewed attention and achieved high classification performance.