

A Search for Common Substructures within Neural Networks

Matthew Saltz

January 2013

1 Introduction

what are neural networks

how are they used

remark that typically, they are treated as a black box; we want to dive into the box

2 Proposal

2.1 Research Question

neural network represented by a graph

neural networks take on different structures: the node structure set up by the developer and the weight structure formed through training

want to explore whether recognizers for different objects exhibit common weighting substructures

also possible to explore whether recognizers for the same object with different node structures have substructures in common

2.2 Experimentation

train neural networks with various structures on various training sets

use various graph comparison techniques on the resulting networks

3 Significance

4 Conclusion