Symbolic Manipulation and Computation in the Same Graph

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Abstract

General artificial intelligence refers to machine intelligence than performs a task as successfully as a human does. A fundamental difference between human neural network and current machine neural networks is that only human networks combine symbolic reasoning with computation. Here we show how a graph can ...

1 Background

1. What is symbolic computation?

   A symbolic computation is a calculation performed with symbolic representations of values and operations. A simple example would be the expression $(x+1)(x-1)$ which would evaluate to x^2-1, rather than to some numerical result.

2. What is calculation?

   A calculation is a process by which one or more inputs is transformed into one or more results. One may calculate that the product of 5 and 4 is 20.

3. What is meant by a computational class? - do you mean complexity class?

Code for each subsection of this document can be found at NeuralNetworkResearch.

2 Methods

2.1 Network Construction

Figure 1 illustrates a neuron that receives three ordered inputs.

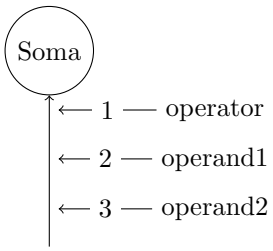

Figure 1: Single neuron receiving ordered intputs.

3 Results

4 Conclusions