

# The Brain

Abhi Agarwal

July 26, 2014

## 1 "Brain"

The brain is an Electrician's Nightmare.

There is an input coming in of some stimulus into the brain, and there's a black box (the brain) that does some processing, and gives an output. Neuroscience is about the black box in the middle.

Being human and being intelligent are different things.

Aim: An artificial system that uses the same functional architecture as an intelligent, living brain should be, likewise intelligent-and not just contrivedly so, but actually, truly intelligent. (Intelligence, 37)

In 1978 Mountcastle pointed out, in his paper "An Organizing Principle for Cerebral Function", that the neocortex is remarkably uniform in appearance and structure. The regions that handle auditory input look like the regions that handle touch, which look like the regions that control muscles, which look like Broca's language area, which looks like particularly every other region of the cortex. He proposes that the cortex uses the same computational tool to accomplish everything it does, and perhaps they are actually performing the same basic operation.

A single learning algorithm can be created. The processing for the input can be done differently, but the middle process can be done with the same algorithm regardless of the sense.

## 2 "Sources"

- Book: On Intelligence, Jeff Hawkins
- Video: Introduction to Neuroscience I and II, Stanford:
  - Neuroscience I: <http://www.youtube.com/watch?v=5031rWXgdYo>
  - Neuroscience II: <http://www.youtube.com/watch?v=uqU9lmFztOU>