Understanding Convolutions in Text

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In this post, we will build a Convolutional Neural Network (CNNs), but we will understand it through images. CNNs are really powerful, and there is a huge body of research that have used CNNs for a variety of tasks. CNNs have become widely popular in text classification systems. CNNs help in reduction in computation by exploiting local correlation of the input data.

A variant of this work essentially describes the approach I took to create a conversational agent as part of my thesis which involved intent classification for a virtual patient training system. 1, 2.

This post relies on a lot of fantastic work that has already been done on convolutions in the text, and here is a list of papers that delve into the details of most of the content I have described here.

- Natural Language Processing (almost) from Scratch
- Character-level Convolutional Networks for Text Classification
- Convolutional Neural Networks for Sentence Classification

Let's start with inputs: