tikz-networks

This library provides a set of commands that simply the creation of Tikz figures representing convolutional neural networks. This project is still a work in progress.

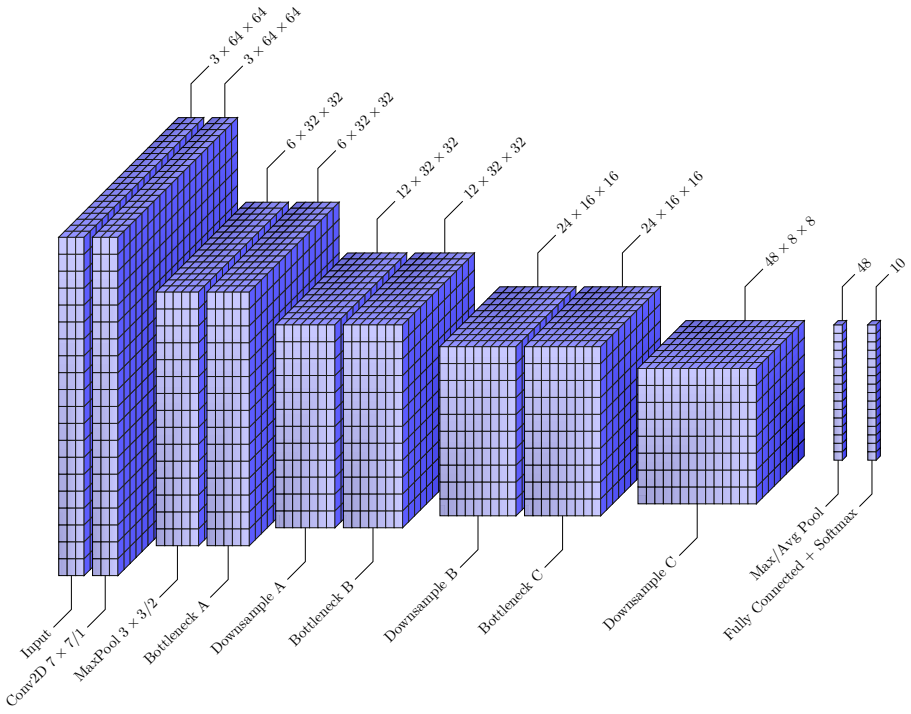

Figure 1: Sample output

Intro

The drawing of 3D tensors is based on a generic approach for drawing cuboids found here. Wrappers are provided that augment the default cuboid drawing options as is appropriate for 3D and 2D tensors. A labeling mechanism is also provided.

Todo

1. This approach is slow for larger networks. It may be useful to tweak the default grid density to reduce the number of drawn paths.
2. Implement a parameterized way to draw and space layers. The provided example could likely be simplified to just a few lines with elegant use of `\foreach` loops.

Usage

See example.tex for a complete usage example.

Layer drawings are done using the `\veclayer` or `\cnnlayer` commands. The former provides defaults suitable for "vector" layers, while the latter provides defaults for 3D tensors. Both commands are wrappers over the generic `\tikzcuboid` command.

Scale

Scale adjustments are best made as follows

```
\begin{tikzpicture}[scale=0.5, every node/.style={scale=0.5}]
    ...
\end{tikzpicture}
```

Keys

The following `tikzset` keys are available

```
\tikzset{
  shiftx/.initial=0,
  shifty/.initial=0,
  dimx/.initial=3,
  dimy/.initial=3,
  dimz/.initial=3,
  scale/.initial=1,
  densityx/.initial=1,
  densityy/.initial=1,
  densityz/.initial=1,
  rotation/.initial=0,
  anglex/.initial=0,
  angley/.initial=90,
  anglez/.initial=225,
  scalex/.initial=1,
  scaley/.initial=1,
  scalez/.initial=0.5,
  front/.style={draw=black,fill=white},
  top/.style={draw=black,fill=white},
  right/.style={draw=black,fill=white},
  shade=false,
  shadecolordark/.initial=black,
  shadecolorlight/.initial=white,
  shadeopacity/.initial=0.15,
  shadesamples/.initial=16,
    emphedge=false,
    emphstyle/.style={thick},
```

```
    label/above=false,
    label/above/text,
    label/above/y/.initial=5,
    label/above/z/.initial=3,
    label/below=false,
    label/below/y/.initial=5,
    label/below/z/.initial=3,
    label/below/text,
    label/.style={rotate=45}, % Label text style
    label/path/.style={draw, -}, % Label line style
}
```