Read Digits from Natural Images using Convolutional Neural Network

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Motivation

- This is a optical character recognition (OCR) problem.
- Digit recognition is used in various applications such as postal mail sorting, bank check processing, form data entry, etc.
- Digit recognition is an important component of modern-day map making. [3]
- It is a challenging problem due to: [3]
  - Wide variability of visual appearance of text: fonts, colors, and orientations.
  - Different environmental factors: lightning, shadows, and occlusions.
  - Image acquisition factors: motion, blurring, and resolution.

Challenges

- Wide variability of visual appearance of text: fonts, colors, and orientations.
- Different environmental factors: lightning, shadows, and occlusions.
- Image acquisition factors: motion, blurring, and resolution.

- The project is about reading digits from the natural images with the help of convolutional neural networks(CNN).

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Environment setup?

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📄 The Street View House Numbers (SVHN) Dataset.
http://ufldl.stanford.edu/housenumbers.
"[Online; accessed 07-10-2017]".

📄 Yuval Netzer, Tao Wang, Adam Coates, Alessandro Bissacco, Bo Wu, and Andrew Y Ng.
Reading digits in natural images with unsupervised feature learning.
In *NIPS workshop on deep learning and unsupervised feature learning*, volume 2011, page 5, 2011.

📄 Ian J Goodfellow, Yaroslav Bulatov, Julian Ibarz, Sacha Arnoud, and Vinay Shet.
Multi-digit Number Recognition from Street View Imagery using Deep Convolutional Neural Networks.
CoRR, abs/1312.6:1–13, 2013.