LDR Data Augmentation for Convolutional Neural Network Construction

by

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To Damien and Colette

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Biographical Sketch

Previous degrees and experience.

Acknowledgments

Thanks to collaborators and supporters.

Abstract

Since the advent of photography practioners have been searching for processed to maximize the detail their images contain. The photography image is inherneitly a limited representation of our reality. The discrete nature and the limited technical range condent the visual relationships of our world. Each image sacrifices certain elements to produce a generalized view of the photographers eye.

Photography in it's earliest form was a practive in capturng brightness values. It's invention in the 1800's as a Black and White medium was our first semi-permanent (all chemical based and ink based photographs fade over time) mechinacal/chemical process to capture our visual existance.

Overfitting is a major issue with a limited dataset. The best CNN models come from big data. The more images available the better the ability of the model to form a more generalized view of the relationships in the data.

Image issues: Limited size, lighting, exposure, viewpoint, occlusion, background, scale, ...

My Thesis will focus on lighting and exposure issues.

Maximize the information in the dataset by creating a more generalized representation by training on the full dynamic range of the image.

1 Introduction

1.1 Citations

This template uses the `natbib` package. Use the command `\cite` for citations in parentheses. Use the command `\citet` for citations in text. Use the command `\citeyearpar` for the year only, in parentheses. For example,

```
... as in \LaTeX\ \cite{Lamport86} ...
... and \citet{Knuth86} claims ...
... and Knuth's later work \citeyearpar{Knuth86} claims ...
```

will result in

... as in LaTeX Lamport (1986) ...
... and Knuth (1986) claims ...
... and Knuth's later work (1986) claims ...

You can change the template to use another citation style if you prefer. The only requirement is that citations appear in the style "accepted in your field."

1.2 Math

Use `\log` and `\exp`, not `log` and `exp`.

Blank lines start a new paragraph - don't start a new paragraph after an equation in the middle of a sentence. Use

```
\[ e^{\pi i} = -1 \]
where $i=\sqrt{-1}.$
```

NOT

```
\[ e^{\pi i} = -1 \]

where $i=\sqrt{-1}.$
```

in order to avoid having the word "where" indented as the beginning of a new paragraph.

Use `\left(` and `\right)` to get parens that are the right size for whatever is inside them.

For a variable or function name consisting of more than one letter, use `\mathit{func}` or `\mathrm{func}`. Otherwise, latex interprets this as $f*u*n*c$.

For angled brackets to denote tuples, use `\langle` and `\rangle`, not < and >.

1.3 Text

TeX assumes that a period ends a sentence unless it follows an uppercase letter. Use `Smith et al.\ claim`, not `Smith et al. claim`. At the end of a sentence, use `consisting of an NP\@.`, not `consisting of an NP.`.

"et al." is "et al.", not "et. al." or "et. al"

2 Conclusion

Bibliography

Donald E. Knuth. *The TEXbook*. Computers & Typesetting. Addison-Wesley Publishing Company, Reading, Massachusetts, 1986.

Leslie Lamport. *LATEX: A Document Preparation System*. Addison-Wesley Publishing Company, Reading, Massachusetts, 1986.

A More stuff