
A TEMPLATE FOR THE *arxiv* STYLE

A PREPRINT

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ABSTRACT

Diabetic retinopathy is an eye disease that can affect people suffering diabetes. It causes damage to the blood vessels of the eyes, deteriorates the eyesight and can lead in the worst case to blindness of the patient. It is important to detect the disease in an early stage to mitigate it as good as possible with an early treatment. Analyzing images of eyes and classify the severity of diabetic retinopathy is a challenging task that requires expert knowledge. To assist doctors and medical personnel, a classification model shall be trained to classify the severity automatically.

1 Introduction

Text about why diabetic retinopathy Detection
Dataset?

2 Object Detection

2.1 Problem analysis

Regression, binary , multiclass

2.2 Architecture

VGG, Resnet, Weight freeeze / unfreeze, GAP, Flatten, Dense Layers

2.3 Weight initialization

2.4 Augmentation

2.5 Dataset Balancing

2.6 Training

Adam, SGD, Momentum, Learning rate decay

2.7 Metrics

incl. QWC

*Use footnote for providing further information about author (webpage, alternative address)—*not* for acknowledging funding agencies.

3 Experiments

3.1 Procedure

WandB sweeps

3.2 Hyperparameter selection

3.3 Grad cam

4 Results

best binary + multiclass performance; color coded confusion matrix

5 Headings: first level

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5.1 Headings: second level

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$$\xi_{ij}(t) = P(x_t = i, x_{t+1} = j | y, v, w; \theta) = \frac{\alpha_i(t) a_{ij}^{w_t} \beta_j(t+1) b_j^{v_{t+1}}(y_{t+1})}{\sum_{i=1}^N \sum_{j=1}^N \alpha_i(t) a_{ij}^{w_t} \beta_j(t+1) b_j^{v_{t+1}}(y_{t+1})} \quad (1)$$

5.1.1 Headings: third level

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Paragraph Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

6 Examples of citations, figures, tables, references

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The documentation for `natbib` may be found at

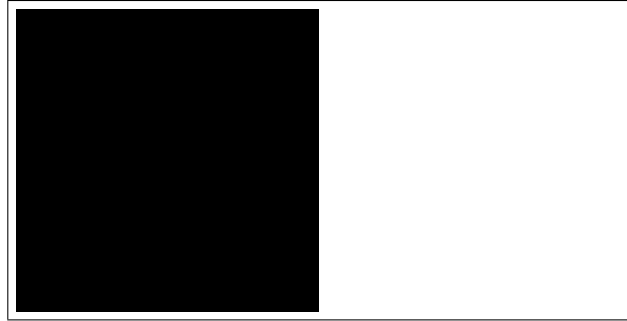


Figure 1: Sample figure caption.

Table 1: Sample table title

Part		
Name	Description	Size (μm)
Dendrite	Input terminal	~ 100
Axon	Output terminal	~ 10
Soma	Cell body	up to 10^6

<http://mirrors.ctan.org/macros/latex/contrib/natbib/natnotes.pdf>

Of note is the command `\citet`, which produces citations appropriate for use in inline text. For example,

```
\citet{hasselmo} investigated\dots
```

produces

Hasselmo, et al. (1995) investigated...

<https://www.ctan.org/pkg/booktabs>

6.1 Figures

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6.2 Tables

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6.3 Lists

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²Sample of the first footnote.

- consectetur adipiscing elit.
- Aliquam dignissim blandit est, in dictum tortor gravida eget. In ac rutrum magna.

References

- [1] George Kour and Raid Saabne. Real-time segmentation of on-line handwritten arabic script. In *Frontiers in Handwriting Recognition (ICFHR), 2014 14th International Conference on*, pages 417–422. IEEE, 2014.
- [2] George Kour and Raid Saabne. Fast classification of handwritten on-line arabic characters. In *Soft Computing and Pattern Recognition (SoCPaR), 2014 6th International Conference of*, pages 312–318. IEEE, 2014.
- [3] Guy Hadash, Einat Kermany, Boaz Carmeli, Ofer Lavi, George Kour, and Alon Jacovi. Estimate and replace: A novel approach to integrating deep neural networks with existing applications. *arXiv preprint arXiv:1804.09028*, 2018.