

Paper Writing & Response Letter

CVLab
NanKai University

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Outline

- **Paper Writing**
- Response Letter



Paper Writing

➤ **Avoid long sentence.** Good presentations, Poor presentations.

- Class imbalance is a ...
It induces biased classification results ...
- Class imbalance is a ... , which produces a biased result ...
- ... focus on the imbalanced distribution of ...
Such distribution indicates a large gap ...
- ... focus on the imbalanced distribution of ... , i.e., a large gap ...

Paper Writing

➤ Consistent format.

- Training/testing set or train/test set
- Figure~1 (recommended) or Fig. ~1
- Eq.~1 or (1)



Paper Writing

➤ **Tense.** Good presentations, Poor presentations.

- use current tense
- the SPBL model becomes ...
- the SPBL model will become ...



Paper Writing

➤ Punctuation at the end of equation.

- If the equation is the end of the sentence use a period, otherwise use a comma.

$$f(v_i, \lambda) = -\lambda v_i, \quad (3)$$

of which the closed-form solution $v^*(\lambda, L)$ is:

$$L(y_i, g(\mathbf{x}_i, \mathbf{w})) = -\log p(y_i | \mathbf{x}_i). \quad (5)$$

Here, $p(y_i | \mathbf{x}_i)$ is the probability of correctly classifying the sample \mathbf{x}_i .

Paper Writing

- **Coherence and logic.** Good presentations, Poor presentations.
- In comparison, the cost-sensitive based methods ... Different from them, the ensemble-based methods ...
- The cost-sensitive based methods ... The ensemble-based methods ...
- we empirically evaluate and analyze ...
- we empirically analyze and evaluate ...

Paper Writing

➤ **More logical issues.** Good presentations, Poor presentations.

- Finally, we re-train the classifier ...
- Finally, we re-train an SVM classifier ...
- a random set which contains $1/K$ of the entire training set
- a random set which contains one-fifth of the entire training set

Paper Writing

- **Be Concise, Clear, and Direct.** Good presentations, Poor presentations.
- Note in the early learning paces ...
- A noticeable phenomenon is that in the early learning stage ...
- After initializing the parameters ...
- As illustrated, after the parameter initialization step ...

Paper Writing

- **Be Concise, Clear, and Direct.** Good presentations, Poor presentations.
- A is calculated based on a trade-off of both B and C.
- A is calculated based on B and C, for which there is a trade-off between these two items.
- penalizing the classification errors with larger weights on the more complex categories
- penalizing the loss with different weights to let the classifier pay more attention to complex categories

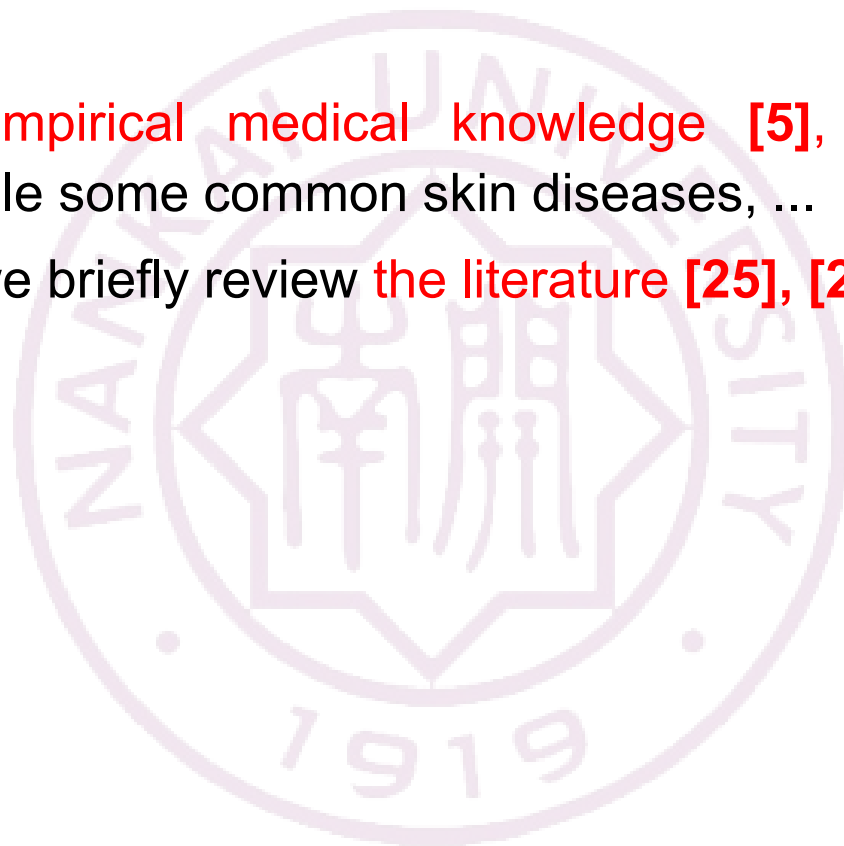
Paper Writing

- **The first word of a sentence.** Wrong presentations.
- Not start a sentence with references, letters or formulas.
- [49], [50] employ bagging to re-sample neighbor instances from minority classes. However, this data augmentation process might inherently produce information redundancy.
- Φ denotes the ...
- $f(\cdot)$ is the ...

Paper Writing

➤ Add references where needed

- According to **empirical medical knowledge [5]**, some rare skin diseases ... , while some common skin diseases, ...
- In this section, we briefly review **the literature [25], [26]** of ...



Paper Writing

➤ The usage of `the`. Good presentations, Poor presentations.

- the SPL
- the sampling based, cost-sensitive based, and ensemble based methods
- the sampling based, the cost-sensitive based, and the ensemble based methods
- sampling based, cost-sensitive based, and ensemble based methods

Wrong

- 1 In ECO framework
- 2 We propose WCNet
- 3 Results on OTB2013
- 4 We apply Gaussian filter ...

Right

- 1 In the ECO framework
- 2 We propose the WCNet model
- 3 Results on the OTB2013 dataset
- 4 We apply the Gaussian filter

Paper Writing

➤ **Chinese English.** Good presentations, Poor presentations.

- the class imbalance problem is also critical in clinical skin disease recognition task.
- it is critical that clinical skin disease recognition is treated as a class imbalance problem.
- This is because that ... during training.
- This is because during the training phase ...

Paper Writing

- **Avoid ambiguity.** Good presentations, Poor presentations.
- We employ a **weight SVM** in this paper as the classifier, where we assign the penalty weight in Eq. 10 to each class before classification.
- For the hinge loss, the standard **weighted SVM** in the one-vs-rest scheme can be employed ...

Paper Writing

➤ **Better presentation.** Good presentations, Poor presentations.

- (1) ... (2) ... (3) ...
- Fig.~1~(a)
- L_1
- $\|$ test $\|$
- A, but B
- negative influence
- contrast methods
- firstly, secondly, thirdly
- often
- 1) ... 2) ... 3) ...
- Fig.~1(a)
- ℓ_1
- $\|$
- A yet B
- negative impact
- compared methods
- first, second, third
- usually

Paper Writing

- **Better presentation.** Good presentations, Poor presentations.
- it relies heavily on
 - it is heavily reliant on
 - we experimentally demonstrate the effectiveness of ...
 - we design comprehensive experiments to demonstrate the effectiveness of ...
 - ... methods. Among them, the sampling-based ones attempt to ...
 - ... methods. Among them, the sampling-based methods try to ...
 - ... may add redundant noisy data or lose the informative training samples.
 - ... may cause redundancy of noisy data or the loss of informative samples.

Paper Writing

- **Space.** Good presentations, Poor presentations.
- If there is a **unusual space** appear in the **ICCV19 latex template**, try to add a **`%'** after the end of **figure** command.

```
\label{fig:distr}  
\end{figure*}  
%  
At the process of preliminary
```

products. At the process of p

```
}  
\label{fig:distr}  
\end{figure*}%  
%  
At the process of preliminary
```

il products. At the process of p

Outline

- Paper Writing
- **Response Letter**



Response Letter

- **Summarize the RL.**
- **List the major changes of the revised version.**

Response to the Comments

We sincerely thank the editor and reviewers for the valuable comments on our paper entitled “Self-Paced Balance Learning for Clinical Skin Disease Recognition” (original ID: TNNLS-2018-P-9395), and we would like to revise the paper accordingly and resubmit it to the IEEE Transactions on Neural Networks and Learning Systems. Benefitting from the significant inputs of ideas and recommendations from the review team, we have been able to prepare a much better manuscript with great effort on addressing all concerns proposed by the reviewers. In this letter, we highlight the corresponding revisions of the manuscript, major changes of the revised version include:

1. We have clarified the technical contributions of this paper with detailed explanations according to the reviewer’s comments.
2. Based on the concerns of the reviewer, we have carefully revised all technical steps of the proposed
- ...

Response Letter

- Reply to each reviewer separately.
- Add a extra line after each paragraph for better looks.

Reviewer 1:

1. Detailed introduction of the self-paced learning framework: *I would recommend some extra attention to the fact that self-paced learning could be less known to a considerable amount of researchers who can potentially read the author's contribution. As a suggestion, I would suggest an extension of the II.B section in order to provide a more self-contained version of the introduction of SPL.*

Reviewer 2:

1. Definition of the weighted SVM: *Weighted SVM is not clearly defined in the methodology section. Is it a cost-sensitive SVM, if so then do we really need to perform data sampling-based rebalancing? There is much evidence in literature on cost-sensitive weighting been successfully applied to tackle imbalance problem.*

Response Letter

➤ Summarize the comment.

Reviewer 2:

1. Definition of the weighted SVM: *Weighted SVM is not clearly defined in the methodology section. Is it a cost-sensitive SVM, if so then do we really need to perform data sampling-based rebalancing? There is much evidence in literature on cost-sensitive weighting been successfully applied to tackle imbalance problem.*

We thank the reviewer for this detailed comment. Actually, the weighted SVM in the manuscript denotes a modified method based on the standard SVM where we introduce a penalty for each category during training the SVM. Specifically, we adopt the released code and implementation from the sk-learn library and set the class weight as w in equation (10) of the manuscript (default is 1). We add this penalty to balance the complexity level of each class, of which the effectiveness is verified in Table I. We have clarified that in Section III-C3 of the revised version as follows:

We employ a weight SVM in this paper as the classifier, where we assign the penalty weight in Eq. 10 to each class before classification.

Response Letter

- **Clear the sentence modification process.**
- **Use italic to denote the comments, original manuscript, and revised sentences.**

9) P10, L55, LC. *'...a classier with separate classifying...' doesn't sound correct.*

We have modified this sentence in the revised version as follows:

In the original manuscript:

On the SD-198 dataset, we can observe that SPBL significantly outperforms the under-sampling based methods. Since, SPBL struggles to learn a model for discriminative representation and a classier with separate classifying space across all the classes.

In the revised version:

As shown in Table II, the SPBL outperforms the under-sampling based methods on the SD-198 dataset with more discriminative representations and classifiers.

Response Letter

- Take every comments and **suggestions** of the reviewers seriously.

tall claims to be reproducible, to be verified. The authors are encouraged to present their findings on the publicly available popular databases – where there have been multiple previous studies made using SMOTE [32], Rescale_{new} [16] etc. and where they could cite the previous results from a peer-reviewed journal papers/conference papers. For the results obtained on the database presented in the current manuscript, the authors are alternately encouraged to share their scripts in the interest of reproducibility of the results.

Dataset	SMOTE [34]	RUS [76]	SMOTE-RSB*[83]	WSVM [84]	WRF [85]	SOSR CNN [86]	CoSen CNN [37]	Rescale _{new} [16]	Ours
MIT-67	33.9	28.4	34.0	35.5	35.2	49.8	56.9	35.1±1.2	64.1±0.5
Caltech-101	67.7	61.4	68.2	70.1	68.7	77.4	83.2	58.1±0.7	88.6±0.4
MNIST	94.5	92.1	96.0	96.8	96.3	97.8	98.6	98.1±0.3	99.0±0.1
MLC	38.9	31.4	43.0	47.7	46.5	65.7	68.6	63.7	72.0

Response Letter

- **Satisfy the reviewers, **not argue** with them.**
- When the reviewer makes an opinion on a certain issue, even if the reviewer's understanding is biased, it is generally because we did not clearly explain the problem in the manuscript.

4. Class distribution: *I have doubts concerning the train and test sets having the same class distribution (IV.B), which I find to be very ad-hoc, and most likely not true in a real-world deployment scenario.*

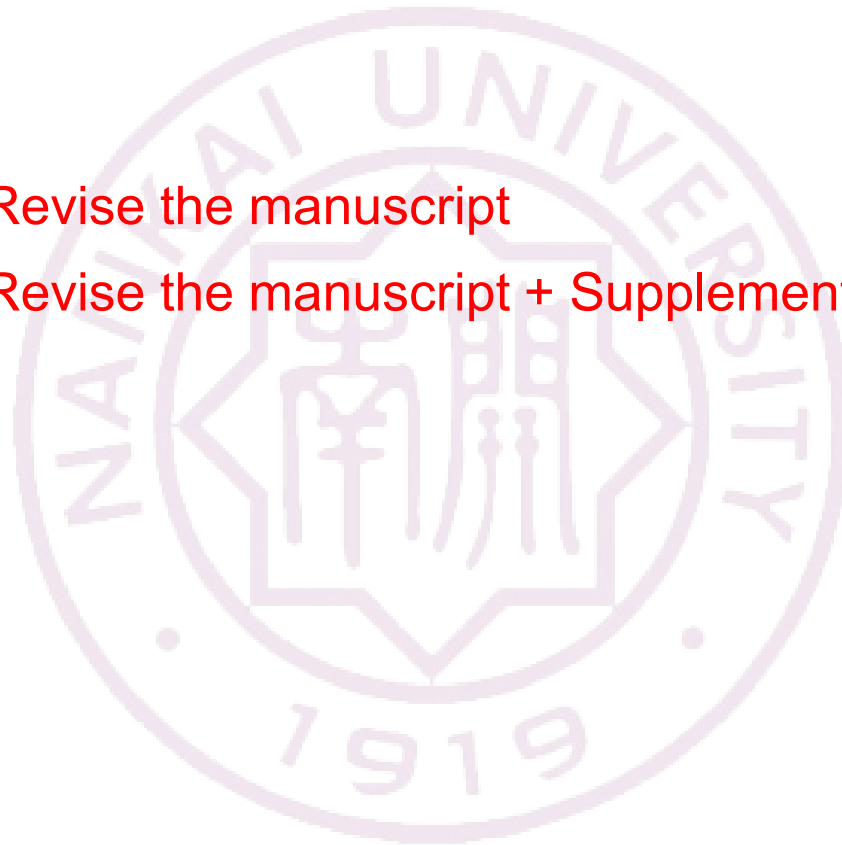
In the original manuscript:

We follow [4] and partition both SD-198 and SD-260 by randomly splitting each dataset into training and test sets of size approximately 50%. Specifically, we select 3,292 images for training and the remaining 3,292 images for testing in SD-198 and 10,362 images vs. 10,238 images in SD-260. Moreover, the class distribution of the test sets is the same as the corresponding training sets as shown in Fig. 1.

Response Letter

➤ The response of comments.

- Explain in RL
- Explain in RL + Revise the manuscript
- Explain in RL + Revise the manuscript + Supplement experiment



Response Letter

➤ The response of comments.

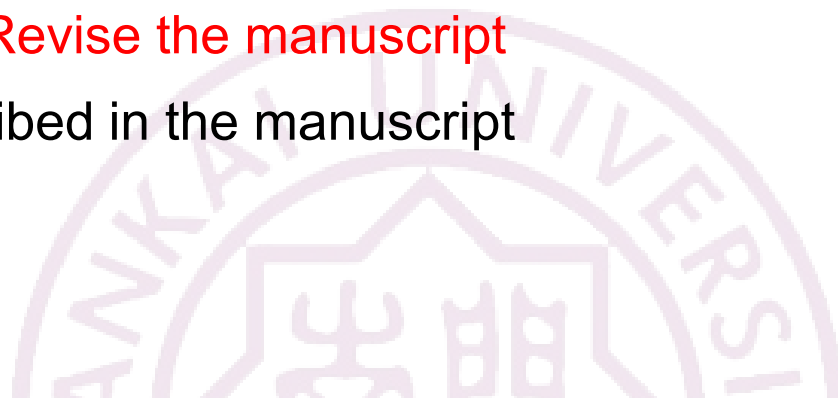
- Explain in RL
- normal questions (e.g., novelty, parameter setting)
- advantages to some methods (no code)

5. Parameters: *In Section IV.C the authors study the K parameter (paces) of the SPBL approach, to optimize it. Later, in IV.E the authors state that 'for a fair comparison all the methods use the same deep features ... with same parameter settings as the estimator if possible.' This is hardly a 'fair comparison' of the methods. It is known that resampling strategies (data-level methods) are highly sensitive to parametrization, i.e. under/oversampling percentages. The authors have not addressed the parametrization of the resampling strategies: have different sampling percentages been used? If not, what are the authors using?*

2. Comparison to the meta-cognitive paradigm: *How is the self-learning paradigm used in this work better than meta-cognitive paradigm which also has the potential to self-regulate the learning process and has recently been applied to tackle class imbalance [1]. Authors are suggested to include some comments on it. [1] Mirza B, Lin Z. Meta-cognitive online sequential extreme learning machine for imbalanced and concept-drifting data classification. Neural Networks. 2016 Aug 1;80:79-94.*

Response Letter

- **The response of comments.**
 - **Explain in RL + Revise the manuscript**
 - not clearly described in the manuscript
 - extension
 - minor issues



6. Results of Figure 3 and Figure 4: *Figures 3 and 4 report in part the same results, by they do not match: performance of the SPBL w.r.t. Accuracy in SD-198, in Figure 4, does not match the respective results in Figure 3. Why is this?*

1. Detailed introduction of the self-paced learning framework: *I would recommend some extra attention to the fact that self-paced learning could be less known to a considerable amount of researchers who can potentially read the author's contribution. As a suggestion, I would suggest an extension of the II.B section in order to provide a more self-contained version of the introduction of SPL.*

Response Letter

➤ The response of comments.

- Explain in RL + Revise the manuscript + Supplement experiment
- rationality of experimental results (e.g., the training/testing split)
- extend to other problems/datasets
- more compared methods

2. Comprehensive organization of experimental evaluation: *My main concern regards the experimental evaluation. The authors use a hold-out methodology, which is acceptable, but may not be the best option for accurate estimations of predictive errors. Cross-validation would be my suggestion, or sliding window/monte carlo simulations if the authors want to/can consider the temporal aspect of information arrival.*

2. Extension of the proposed technique to other problems: *My only issue with the proposed technique is that class imbalance (with varying recognition difficulty) is not specific to visual skin disease recognition; therefore, the method should also be tested on other problems, possibly simpler (e.g., fewer classes, or without the additional complications introduced by computer vision), so that the net effect of SBPL can be better observed against the background noise introduced by other stages of the learning algorithm.*

Response Letter

➤ The tone of comments.

- Reviewer 1's positive comments may be an important basis for responding to Reviewer 2's question.

