The Whole Structure of Our Paper

Team #00000

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Abstract

The goal of an abstract is to give an overall description of the paper. We should illustrate these points:

1)A little background of the problem.
2)Our basic model
3)Our new model, namely what is the improvement of this model compared with those previous ones. Some descriptions about the weakness of previous models(which are what we are trying to solve).
4)The good results we get from our new model.
In general, the abstract must illustrate what we have done in this paper and the significance of these improvements(usually by showing those good results we have).

Contents

1   Introduction

A more detailed introduction about the background of this problem. Some important terms to narrate this problem and how important it is to solve this problem(which is equivalent to say that our dedication is worthy).

1.1   Restatement of the Problem

A little paragraph about what we are trying to solve. In the abstract and introduction, we have given the description of the real-world problem. In this section, we must try to formalize our problem in a more mathematical way which could be directly transformed to either evaluation or regulation or procedure of our model.

1.2   Literature Review

This section should give the readers a rough idea about what have already be done. It should at least give the introduction about those works from which you get your inspirations. Moreover, it is better to compare several well known models and give a brief summary about the relative strongness and weakness between them. Then, you could illustrate you own model at the end of this section.

2   Assumptions and Justifications

This is a very important section. In this part, you should give all the basic assumption under which you build your model. Every model has its applicable range, so you must figure out what are those assumption at the beginning of building a model. Those assumption should be inspired and concordant with our daily intuition. The form of assumption and justification should be more or less like this:

- **A sentence of assumption** A sentence of justification. Usually, this is a narrative of an intuition from which you derive your assumption. You should depict this intuition and its connection with the assumption.

3   Notations

This part is not so important, only provide some convenience for the reader to figure out the meaning of each notation. We can adjust its size according to how many space we have in the real competition.

4   Model

In this part, we begin to describe our model in details, for example, the justification of our model, the meanings of parameters of our model, how to train our model(usually illustrating step by step) etc. If we have several models, we could also give a brief comparison between them. If they are aiming to solve different problem, we need to give a whole structure of this section to the readers since this section must be one of the biggest and most important part of our paper. In general, this section cover everything about the model except results. Every subsection cover details of a single model. The beginning of this section is aiming to give readers a general structure and idea of this part, and brief introduction of each model(par example, quel est son problem.)

4.1   Model 1

A brief idea of this model, including its goal and its conditions, and we use every subsubsection for detailed descriptions. We show an example in the following part.

4.1.1   Background of this model and Justification(Some further assumption for this specific model, if any)

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(In section 2, we have given some assumptions, we can regard them as general rule for the whole problem. In this part, since we have a specific model aiming a specific problem, we could give a little bit more assumption or regulation to make it easier to build this model. And our other model might suit for different assumptions and conditions)

4.1.2 The mathematical description of the model and meanings of parameters

RT

4.1.3 The learning algorithm

Describe how to learn this model, step by step illustration or, for example, gradient descent.

4.2 Model 2

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5 Results

1)All results we have

2)What criteria we should use to evaluate our model and why

3)Discussion and comparison of result and each model(Better if we could compare the result of our model and previous one, demonstrating our model is better in some sense).

4)If we use different parameter value, is there any difference? How should we choose our parameter value?

5)Can we use external data or proof(searching on Internet) to demonstrate our model is satisfactory?

6)Any more specific discussion about model(par example, is there any probability distribution similar to our result?and why? Can we use a statistical way to evaluate our result(variance etc). If we aggrandize our data size, will our result be more convincible? Is our model computational friendly and in what extent it is?)

6   Sensitivity Analysis

This is actually the concern about whether our model is statistical robust to some outliers. Those outliers could be change in data, could be change in assumptions, could be change in parameter value. We should try our best to test under different outlier conditions, what are the behaviors of our model and compare them in details.

7   Further Discussions

I think this part is more adaptable to the problem requirement, namely we could find what the problem expect us to discuss in this part. Nevertheless, except those specific topic, there are some general things we should discuss no matter what the problem is. They are,
1)Strengthness and weakness.

2)What else can we do in the future.

References

[1] MCM O prize of 2014.