

Your Project Title Here

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Abstract

The abstract should be at most 150 words long, and should summarize briefly what your project is about. This includes motivation (2-3 sentences), what you did (2-3 sentences), and what the results are (1-2 sentences). The abstract is only required for the milestone report and final report. You can delete this section for the proposal.

Introduction

The Introduction section (~1 page) describes the background and motivation behind your work, and provides an overview of the work and the findings. This section should

- describe the problem that your project is addressing. How bad is this problem and why is this an important problem to tackle? Do some research to get some statistics and facts about the problem to really motivate this work. (2 paragraphs)
- describe, at a high-level, what you did and what you found. What research questions are you trying to answer? What algorithms did you analyze? What dataset did you use? What are your performance measures? What are the potential real-world impact of this work? Finally, in 2-3 sentences, describe your key findings. (1 paragraph)
- emphasize your contributions. Why should people care about this work? Does this project introduce any novel techniques or reveal any unexpected findings? In bullet point forms, list 3-4 key contributions of your project.

Related Work

The Related Work section (~1 page) summarizes prior work (e.g., machine learning algorithms) for addressing the same problem or similar problems. In this section, you should include 3-4 paragraphs, where each paragraph contains a number of papers (2-3) grouped by a theme. You should aim to survey at least 10-12 papers. Whenever possible, synthesize the literature by

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describing multiple papers in aggregate, i.e., mentioning a common technique that multiple prior work used. Never spend an entire paragraph describing a single paper. Just as an example, here's how you do citations (?; ?; ?).

If your project is a survey paper, then the related work section should be the rest of your report.

Methodology

If you are using a data set, this section first describes the dataset that you are analyzing (~ 1 page). You should describe the size of the dataset(s) (i.e., number of examples), the meaning of the features, and other unique characteristics of the datasets. Explain why the datasets are appropriate for your problem and what are their limitations. Include the URL of the websites from which you downloaded the dataset(s). It would be an additional contribution if you can find multiple data sources, and merge them in meaningful way to create a new dataset.

Next, provide a description of the models/algorithms that you chose to implement (~ 1.5 pages). Describe in details how each algorithm works, including their mathematical formulations. Include pseudo-code, if necessary. If you had to extend an existing algorithm in order for it to work with the problem, describe in details what is different/new. Provide a rationale for why you selected these particular algorithms and how they are appropriate for the problem. If your goal is to compare the results of multiple algorithms, describe how you plan to do so here.

Results

The Evaluation section (~2 pages) describes how you evaluated the models/algorithms and reports the findings.

First, describe the measures that you used to evaluate the algorithms (~0.5 page). Be as precise as possible by including their mathematical formulations. Provide a rationale for why these performance metrics are appropriate for your problem.

Next, describe other details about your experimental design (~0.5 page). Include details such as how you

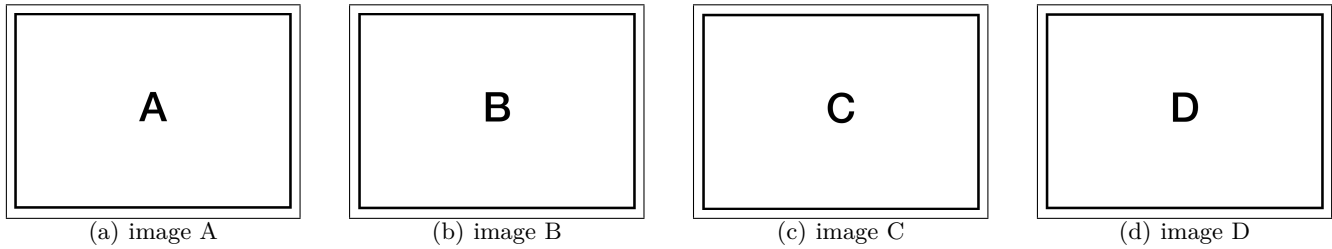


Figure 1: Another example of figure layout

created the training, validation and test set, how you selected the model's hyper-parameters, etc.

Finally, describe the findings from your evaluation (~1 page). This is the most important section of your report. Describe both (a) how well your techniques worked, and (b) what you learned about the problem through these techniques.

Techniques	F-1 Score
Baseline	0.80
Another Baseline	0.76
My Awesome Algorithm	0.95

Table 1: example of a table summarizing the results

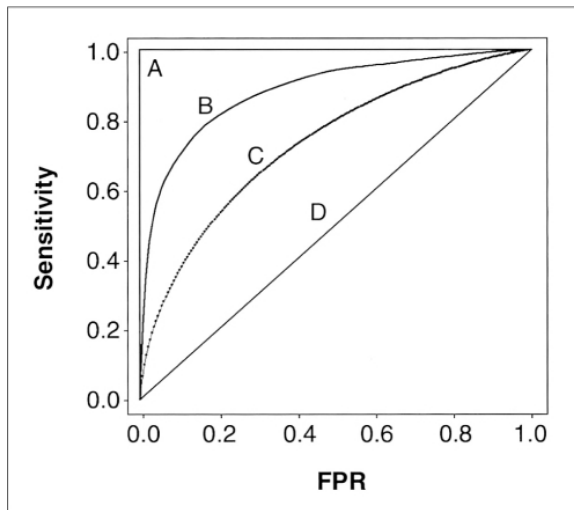


Figure 2: ROC curve of my awesome algorithms

Prepare figures (e.g., Figure 2) and tables (e.g., Table 1) to describe your results clearly. If you are comparing the performance of algorithms, include statistical tests to assess whether the differences are statistically significant. If possible, describe how your techniques compare to prior work.

Discussion

The Discussion section (~1 pages) describes the implications of your results, the impact of your approach

(i.e., to what extent does your approach help to improve the problem), and the limitations.

Conclusion

The Conclusion section (~0.5 pages) provides a brief overview of the entire paper. In this section, describe (a) the motivation behind this work, what you did and what you found, (b) 3-4 promising future directions.