Research paper title.

TODO, Brandon Amos, TODO

Dept. of Computer Science

Virginia Tech

Blacksburg, Virginia, USA

Email: {bdamos@vt.edu}

Abstract—**The content in this document is from Jules White at https://code.google.com/p/mobilecps/source/browse/#svn%2Ftrunk%2Fprojects%2Fhamilton_turner%2Fpapers**

I. INTRODUCTION

Emerging Trends and Challenges. Give a one paragraph overview of the domain that the paper is going to describe a problem in. Make sure and reference any existing papers that have named the domain.

Describe in one paragraph why this domain is important. It is nice if you can give specific examples of other research or things that are being done in this domain that are important to society.

Open Problem ⇒ Name the problem you are going to address. Now, tell the reader what important problem from this domain has not been solved that you are going to attack. Stick to one paragraph. Be VERY specific about what general problem you are solving.

Briefly discuss and cite in a single paragraph other research done in this domain. Make sure and explain why the existing research does not address the problem that you are describing and solving in the paper.

If you have some metrics that you are going to use to claim superiority over prior work, you can introduce them in a single paragraph here. Explain why the metrics are important and why when you evaluate the existing work using these metrics it motivates your new work.

Solution Approach ⇒ A pithy heading for your solution. To address XYZ problem, we have done QRS. Describe what you have done and why it is novel.

In Section V we present empirical data that we have gathered from experiments showing QRS. Give a 1-paragraph overview of what experiments you ran and how they showed you were superior to existing solutions.

This paper provides the following contributions to the study of XYZ:

- Pithy sentence describing contribution.
- Pithy sentence describing contribution 2.
- Pithy sentence describing contribution 3.
- We present empirical results that show QRS.

The remainder of this paper is organized as follows: Section II describes PQR, which we use as a motivating example throughout the paper; Section III discusses the challenges that we faced when ..... ; Section IV covers the our solution to XYZ; Section V presents empirical results from analyzing TUV; and Section VII presents concluding remarks and lessons learned.

II. MOTIVATING EXAMPLE

Give a 2-4 paragraph overview of a motivating example. Make sure and explain how your motivating example fits into the core theme and why your motivating example is an important one (e.g. why should anyone care about your example). It is good to have a nice diagram in this section that you refer to when describing your motivating example. Also, make sure and allude to the overall problem that you spelled out in the introduction.

III. XYZ CHALLENGES

Begin the section with a one paragraph overview of the section. Outline what the challenges are that you are going to discuss. You can start the paragraph with something like "Although XYZ could solve world hunger, there are a number of challenges to developing an XYZ."

A. Challenge 1: Something is Hard, Complex, etc.

You should start out with a one paragraph description of the challenge. Make sure that you immediately relate the challenge back to the theme of the paper. Do not introduce new terminology that you have not previously defined. Make sure that your description of the challenge is high-level and clear.

The second paragraph of the challenge should explain how the challenge concretely manifests in the motivating example. The first paragraph generally describes the challenge. This paragraph is showing a specific example of the challenge in the context of your motivating example. Be very specific so that the reader understands all of the details. End the paragraph with a sentence similar to the following: Section IV describes how we address this challenge by QRS.

B. Challenge 2: Something Else is an Issue

You should start out with a one paragraph description of the challenge. Make sure that you immediately relate the challenge back to the theme of the paper. Do not introduce new terminology that you have not previously defined. Make sure that your description of the challenge is high-level and clear.

The second paragraph of the challenge should explain how the challenge concretely manifests in the motivating example.

The first paragraph generally describes the challenge. This paragraph is showing a specific example of the challenge in the context of your motivating example. Be very specific so that the reader understands all of the details. End the paragraph with a sentence similar to the following: Section IV describes how we address this challenge by QRS.

C. Challenge 3: Another Painful Issue

You should start out with a one paragraph description of the challenge. Make sure that you immediately relate the challenge back to the theme of the paper. Do not introduce new terminology that you have not previously defined. Make sure that your description of the challenge is high-level and clear.

The second paragraph of the challenge should explain how the challenge concretely manifests in the motivating example. The first paragraph generally describes the challenge. This paragraph is showing a specific example of the challenge in the context of your motivating example. Be very specific so that the reader understands all of the details. End the paragraph with a sentence similar to the following: Section IV describes how we address this challenge by QRS.

IV. XYZ Solution

Start your solution section with an overview of all of the components of your solution. It is a good idea to have a high-level diagram showing how all of the components of your solution fit together.

A. Solution Component 1

It is ideal if you can break your solution down into components that each address a specific challenge that you outlined. If this breakdown doesn't make sense, make sure and explain how you address each of the challenges by referring back to them with "... to address Challenge 1, from Section III-A."

B. Solution Component 2

C. Solution Component Etc.

V. Empirical Evaluation of Learning

A. Experimental Platform

In 2-3 paragraphs describe the experimental platform that you used. For example, describe the processor, memory, etc. that were in the machine you used for experiments. List the OS version, etc.

B. Experiment 1: Pithy title of experiment

Give a 1-paragraph overview of the point of the experiment. What were you trying to prove with the experiment? Make sure and explain how the experiment fits into your overall theme. Ideally, you will refer back to a challenge.

Hypothesis: Pithy hypothesis heading. Our hypothesis was XYZ. Describe what you expected to happen.

Experiment 1 Results. Include one or more graphs, tables, or figures showing some hard data from your experiments. Describe what is seen in the graphs. Be very detailed in your discussions and make sure that you label all aspects of your tables, figures, graphs.

C. Experiment 2: Pithy title of experiment

Give a 1-paragraph overview of the point of the experiment. What were you trying to prove with the experiment? Make sure and explain how the experiment fits into your overall theme. Ideally, you will refer back to a challenge.

Hypothesis: Pithy hypothesis heading. Our hypothesis was XYZ. Describe what you expected to happen.

Experiment 2 Results. Include one or more graphs, tables, or figures showing some hard data from your experiments. Describe what is seen in the graphs. Be very detailed in your discussions and make sure that you label all aspects of your tables, figures, graphs.

D. Analysis of Results

Describe what you learned from the empirical data collected from the experiemnts. Why is the data important? How does it show you did a good job solving the problem? Does it prove that you are better than existing approaches? Are there areas where you do not perform as well? Describe these things here.

VI. Related Work

One paragraph overview of the areas of related work covered. Try to use the word "taxonomy" in the paragraph.

Category of Related Work 1. Start with a general description of what the type of related work does. Then, give specifics of one or more papers in this area and briefly summarize how each attacked a related problem. Finally, describe how the work presented in this paper compares/contrasts with related work. If you can refer back to the results section, that is ideal. Citations, such as [1], should be used here.

Category of Related Work 2. Start with a general description of what the type of related work does. Then, give specifics of one or more papers in this area and briefly summarize how each attacked a related problem. Finally, describe how the work presented in this paper compares/contrasts with related work. If you can refer back to the results section, that is ideal.

Category of Related Work 3. Start with a general description of what the type of related work does. Then, give specifics of one or more papers in this area and briefly summarize how each attacked a related problem. Finally, describe how the work presented in this paper compares/contrasts with related work. If you can refer back to the results section, that is ideal.

VII. Concluding Remarks & Lessons Learned

Give an overview of the problem that was discussed in the paper. However, avoid giving a blow by blow discussion of the paper (e.g. do not say Section 1 discussed blah, Section 2 discussed blah blah).

Describe in a paragraph how you solved the problem and important points from your results section. From our research on XYZ, we learned the following important lessons:

1) **Pithy heading for lesson learned.** Always start out with a positive lesson learned. The lessons learned

should be interesting discoveries that were made in the process of conducting the research.

2) **Pithy heading for lesson learned.** Always include a few negative lessons that motivate future work. For example, we found that QRS is not accurate enough to produce TUV. This is due to.... In future work, we plan to investigate ABC to address this gap.

The XYZ and experiments described in this paper are available in opensource form from http://foo.com/mystuff.

REFERENCES

[1] G. Rose, "Mobile phones as traffic probes: practices, prospects and issues," *Transport Reviews*, vol. 26, no. 3, pp. 275–291, 2006.