How to read research papers in computer science

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Abstract

This paper presents methods to find and read research papers in computer science which is an important step towards doing research. There are several ways to find papers such as going to library. Moreover, high quality papers should be identified in order to save our time to read relevant papers. In this paper, guidelines provides sorts of practical rules to learn from papers. This paper also give you some suggestions to read details of a paper. Reviewing papers would let you know whether your problems are solved or not and the current situation in you research fields. It is essential for your research. After reading plenty of papers, you will do a better research.

Keywords research papers, guideline, research

1. Introduction

When we read a research paper, we intend to understand new findings or contributions made by the authors and learn how to articulate our own contribution. By reading, we could find some new ideas, perspectives, approaches and methods we do not have or know before[4]. Importantly, reading research paper in computer science also offers us knowing who have done research in the same areas. There are large amount of computer science research papers and books published every year. We do not have enough time to read them all. We should acquire how to find a research paper related to our interest firstly. Before reading, some guidelines would provide us knowing how to read a research paper thoroughly. Then, we could read a paper step by step to obtain what we really care.

2. How to find research papers in computer science

There are lots of tools to find papers. Papers are usually published on journal, conference, books and technical reports[5]. CS papers could be found on this common places. Technologies of computer science are updated frequently. It is a quick way to obtain the latest hotpot problems from conference, while journal papers are published in a long period with more consideration and explanation. Conference papers are peer reviewed like journal papers.

We can find thousands of papers via tools. Most papers are not relevant to the research field we participate in. Before searching papers, you need identify your problem or what specific you want to get, and then use keywords to search papers[4]. The more keywords you use, the more match paper you get. Whether the paper we find is good or not? The efficient way is to track the paper's citation. High citation means it's considered to be a high quality paper or at least read by other researchers.

It is a goo way to follow experts's research. Experts always give you excellent thoughts in a certain field. You can find the research direction and state of art technologies though reading their papers.

3. Guildeline for reading

It is not easy to finding the core by reading a paper. Thats why we need learn how to read. Firstly, we are not required to accept all ideas or results the authors present. We should read a paper with critical eyes and appropriate questions[1]. For example, what is the problem the authors try to address? Is this problem scientifically significant? If the authors try to solve a problem, we might ask whether they solve the right problem with best solutions[5]. What is the limitation of the solution? Is there better or more efficient solution to the research problem? Are the assumptions reasonable in the paper[1]? Does the data measured and interpreted correctly? Could other data be applied? Keep asking ourselves these questions when reading would assist us finding the core problem in the paper quickly. In fact,

these questions could be applied perfectly when reading a computer science research paper.

Scientific papers often attempt to introduce new ideas or solutions[2]. That provides us reading a research paper with expectations to find new ideas and think about the future. Are they ideas good or interesting? Are their contributions significant? Could the ideas be applied on more aspects? It there any possibility to do further research based on their conclusions or findings? What can we do next[3]? Thinking creatively about the paper ensures us stepping into a journey coming up with new ideas. It is very common and necessary to collaborate in computer science area, thus whether the results could be utilized in our own research should be thought as well.

Another good way is making notes when reading a research paper. No matter what specific ways would be taken, we should write down our questions or suspicions, make the core ideas and data clearly to notice and remember. Sometimes, we need read a paper twice or more. The notes would help understand quickly when reading again.

Then, summarize a paper briefly with our own words[2]. In terms of the main purpose of a research paper is solving a problem with a solution, we could summarize the paper by clarify the most significant point and subpoints. It demonstrates that readers how deeply understanding the paper by summarizing it. If one or two sentences are not enough, readers are encouraged to write an alternative abstract for the paper.

4. Reading a research papers in computer science

By understanding the guidelines or principles, we begin to read a research paper step by step. The title of a research tells readers about what the main points or what the problems the authors intend to solve.

Abstract is a brief summary of the paper including background, research problem, methodology, process, results and conclusions. We could understand the paper briefly by understanding abstract. Introduction generally shows the research background, the theoretical importance and potential contributions of the research problem. It is necessary that beginning to read critically so that we can have background knowledge of the paper. In computer science, authors normally briefly summarize latest work by outstanding researchers and themselves in introduction part. We would quickly acquire what the ideas or findings at the cutting edge of the related areas.The authors articulate the approaches and methods in the methodology part. When reading this part, all questions about methods should be thought and asked. We may learn the method and do the same research to test whether the research in paper works. Results part mainly indicates the important results obtained by the authors. We might need to think both critically and creatively in this part. The conclusions part clarifies the significance and implies the applications of the research. When reading this part, we need notice the new contributions and think about other potential applications. Usually, there is a future work part. This part indicates some works the author may do in the future. This could give us some good idea to do further research in this research direction.

After we read a paper, it is better to make note about that. This is not only used when we write paper, but reminded us what the main point of the paper is. There are many ways to organize papers. A BibTeX file is a good idea[5] to do that. We can add some descriptions about papers.

5. Conclusion

Reading and understanding research papers in related area enable new researchers initiating a research direction. Thats why we need learn how to read a research paper. Firstly, we are required to find good research papers out of various papers, books and study materials. Then, we should notice and remember some critical guidelines preparing for reading a research paper. After that, we begin to read a related paper thoroughly with questions and thinking. This student paper generally introduces how to read a research paper, the reading skills would be practiced and improved.

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