

A Primer on Computer Science Research Design for Novices

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ABSTRACT

Throughout history, research has been a driving force behind the development and growth of every field imaginable. However, researchers with the necessary expertise are few. Education provided in the classroom or in the first year of college. In this study, we provide a method that is both efficient and process often known as the "Eight-Step Approach to Research," will teach you the fundamentals of "how to get started performing research" in this case, a computer science subfield. However, the document is computer science academics and students. However, it is important to remember that this approach may appropriate for use in any academic discipline's pursuit of inquiry.

INTRODUCTION

A researcher's life is filled with reading research papers for a variety of objectives, including but not limited to evaluating them for a conference, journal, or course. Fresh in that area of research, or for the sake of a literature review of uncharted territory or to add another stone to the building of expertise in the field of study. The truth was that this cited accurately in S. Keshav's paper with reference to [1] "How to Read a Paper." While there are high-quality content about the systematic techniques for reading a writings, but few of the pieces really educate first things to do while beginning a research project for kids. To read and compose any kind of text, technical or otherwise in-depth study and research, one must first get familiar with abilities need to begin independent research in a region, subject, or focus. This is why it is the only reason the goal of this article is to provide information to curious newcomers in

questions about getting one's feet wet in the realm of computer science anything like a study paper. The next part will begin with a discussion of the inspiration for the concept that led me to compose throughout this article, and in Chapter 3 we will explore use the straightforward "Eight-Step Approach to Research," which provide the reader with some background information before beginning doing research Then, in Part 4, we'll examine the disadvantages and practical knowledge gained from using this system and in Part Five: Related Material

MOTIVATION

The knowledge and abilities essential to doing research are often introduced during graduate study, either at the conclusion of the master's programmed or just before the student begins their studies at the master's level. Whether you're working on your dissertation or just starting off in graduate school. One of the fastest-changing fields is computer science. Issues in the world due of how quickly it moves applications. This calls for a greater supply of competent computer programmers. Researchers, academics, etc. However, the vast majority of educational institutions centers for

undergraduate education do not adequately provide students with the fundamental training in research methodology prerequisite work. In 2012, 235 people were questioned in a poll. Graduate and undergraduate students of the St. Xavier University's Computer Science Program to determine the student enrollment in (Independent), India acceptable in a technical writing/poster competition. Surprisingly, though, for the survey's creator, one of the most frequently asked topics in Reaction to the student poll was "How and Where to Begin a Study?" Thus, 198 Students had the same question out of a total of 235.

In the same vein, 594 people were surveyed in 2013. College of William and Mary's School of Computer Science Students at Manchester University come from all around the world. Courses offered at the undergraduate and graduate levels. Out of 594 Four hundred and ninety-nine students repeated their prior inquiry about how and where to start investigation. So, we decided to conduct a poll to find out. According to the data, 84.26 percent of computer science college-goers from India's St. Xavier's College (Autonomous) in which 70.54

percent of the major's CS When asked about this at the University of Manchester, faculty members said they "had no knowledge" regards to how to kick off a study.

THE EIGHT-STEP APPROACH TO RESEARCH

To do research or begin a research project, follow the easy eight-step process shown below.

The methodology is shown in the block-diagram format in figure 1



Figure 1: Block Diagram of “Eight-Step Approach to Research”

The instructions in Figure 1 are meant to put the reader at ease, since they may be quite similar to those in a block diagram of a

familiar system. The technique takes an algorithmic, "Step," approach, however is accessible to readers from all academic disciplines. The methodological explanation in the following paragraph

Step 1: Select a Subject Area that You Like

This initial step might be challenging but ultimately rewarding. Pick the specific subfields or subtopics of computer science and engineering that most interest you while studying any subject. In the area where you get the most pleasure in spending time reading and contemplating catch on to it. Select or choose your themes, and then write about them. On paper, whether in a neat or scribbled fashion

Step 2: Search Databases

Finding relevant information in databases comes after the first stage of picking your preferred themes. People now automatically think of the internet anytime they have a need to do a search. Aside from the real world, they are always on the lookout for type "that" into the Google search bar or "that" into the online encyclopedia dictionary or the search engines (like Bing

or Yahoo). But, it bears in mind that the search results that are generic in scope, and not tailored to a specific query. And it's possible that those sources aren't reliable, either. That's why it's important to look for those keywords: or "the entity" associated with academic journals or writings Academic databases, cataloguing, and archiving systems. In light of the fact that the primary audience for this work consists of computer studies in science, the best studies in the field The Association for Computing Machinery Digital Library [7] and IEEE Explore INSPEC IET Digital Library [8], Digital Library [8] Scopus [13], Elsevier's Publishing Services [12], and the Digital Public Library of Medicine [10] (12), Science Direct Springer Publishing Operations, 13 [14], etc. Please be aware that the above list of databases does comprehensive in scope, but here are just a few of the most common options researchers and professionals in the field of computer science tend to publish in on their job. Additionally, you may use this search function on The Google Scholar Search Engine [15] and the Microsoft Academic Use either Academic Search [16] or the ArXiv Archive to find this paper.

Step 3: Sort Scholarly Articles and Research Papers

What I don't mean is to immediately begin using a sorting technique like fast sort or merge sort to a pile of articles or research papers. This is more complicated than it seems and requires Human judgement is preferable than automated processing every time. This next stage, however, will be explained only once you learn how to differentiate between the various academic articles. There are two main types of research papers: papers of these [2] forms: (a) argumentative (or) analytical (research) Scientific Report. The components of an argumentative research report are the claims that the author will argue for or against a certain position. To this end, in this document where the writer presents an argument and win over the reader by making them accept the claims you've made. The logical proofs that you have provided.

The writer of an analytical research paper primarily scrutinizes a subject or line of reasoning and offers his own viewpoints on the matter at hand. Finally, after scouring the databases for a list of credible academic materials, such as articles and research

papers, on the subject select the papers and/or articles that are relevant to your needs and most pique your attention. But reading is a must for doing that. Titles and abstracts of research papers to gain an uncertainty as to the nature of the study article being referred to (either an analytical or argumentative) Becoming an expert at this may take some time. Professional at this procedure, however once you've acquired knowledge of the specific genre you're writing, you'll have a simpler time putting together your paper. You must determine whether the article or paper is useful to you before you whether the study really works or not.

Step 4: Read Articles/Papers

Keshav's [1] "How to Read a Paper" paper is helpful for this phase since it presents a three-pronged strategy for reading a paper: paper proficiently so that you may be able to grasp the fundamental idea of the article or the article.

Step 5: Brainstorming and Innovate

When I say brainstorming, it does not mean that think about what you have read in the paper or the article for few seconds or few

minutes. For this you have to be very analytical and critical about the paper. Do not take all the logics and arguments provided in the article or paper for granted and you should try to think both analytically and critically about it?

Step 6: List all Relevant References

In this step, you actually need to make a list of the citations that are provided in the reference section. The important question you may have regarding this step is "Why do I need to list the references?" This can be seen as a future investment. Make a list of the references that are relevant to that research area and may aid you to understand the paper properly. Sometimes a research paper may give you only one picture or perspective of a scenario, but in order to understand the complete scenario, you may need to explore the ideas and arguments provided in other papers or articles; those are cited by the research paper that you are recently reading. After generating the list, you can perform the step 2 using this list, so that you can read those papers to get a broader view in that research area.

Limitations and Experience of this Approach

It's important to remember that this is not a strict, hard and fast guide for doing research; rather, it's meant to serve as a foundation for novice scientists as they embark on their first studies. Study using this uncomplicated method at some time in the future. In spite of the fact that the approach presented in this research is designed for novices and those studying computer science The technique may be utilized by anybody to kick start a homework on an assigned subject. Furthermore, it is important to store in certain cases, researchers or supervisors may have some study methods, but this one among them there are several options that may be taken that are both simple and sensible. Action verb I've just been exploring several different areas of computing science ever since my very first year of university. Therefore, since I did not have any prior experience in the field of computer science it was challenging to get a bachelor's degree in this field. In order for me to do independent study on a subject. But I've matured and grown with the years, I came up with this method specifically for incoming students so that academics might

begin their own studies. Over the last four years this method has helped many of my students, and scientists, and they've discovered that this method is extremely helpful.

Related Work

It is recommended that you read "How to Read a Paper" by Keshav [1] before attempting to use this eight-step strategy to research. If you when you need assistance with writing technical papers, it's well worth your time to seek professional assistance. To check out Schulzrinne's published works [3] and Specifically, Whitesides [4]. Also, if you want to know about Research, go here. It is highly suggested that you check out the content on the website by Take a peek at the presentation by Johnson [5] or read his Concerning "What is Research?", Somers [6] says the following.

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