



A REVIEW ON HOW TO WRITE TECHNICAL RESEARCH ARTICLES

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Abstract

Introduction, materials & methods, results, discussion, and conclusions are the core sections of a research paper. Academics can be conservative when it comes to writing styles, but writing shouldn't be boring. Competition is high for academics looking to publish their papers, so we know you're worried about how to improve your chances. Research must be solid, the paper must be logically structured, and the manuscript sections must contain the right information. Clarity depends on correct English usage, so watch out for errors with articles, prepositions, word choice, and punctuation. Even if the grammar and sentence structure are perfect, make writing more compelling by using powerful verbs and phrases. Journal articles' titles and images attract readers. A self-contained abstract describes a broader work. Abstracts are published online and in most conference proceedings. The abstract is a key part of a research paper. Potential reviewers only read the abstract when invited by an editor to assess a paper. Abstracts should concisely describe the topic, scope, purpose, results, and conclusion of the work. The abstract is indexed by search engines, so be sure it has the words a colleague researcher will use to find publications online. Make sure it's full of data and numbers to show scientific rigour. Results should be clear and confident. Here's an overview of different journal articles on antenna simulation, embedded system design, cyber security, PI controller, IIoT (industrial internet of things), and image processing.

Keywords: Introduction, Materials and Methods, Results and Discussion, Conclusions and Future Works, Acknowledgements.

I. Introduction

The introduction follows the abstract. The introduction should briefly describe your topic and study goals. The introduction sets the setting and makes a solid first impression. The introduction should be written after the other sections. It's hard to know what to include in the paper's introduction until you see the whole picture. Be confident in your topic and provide sources. The opening should give the reader a sense of the rest of the article. Your paper's introduction should include Overview, Problem-solving, Literature gaps, Problems, Studying, Goals, Work's importance and benefits. The literature review should show the author's research knowledge. Literature reviews are usually in the introduction. A well-written literature review should give a critical critique of past findings, not just a synopsis. The author should critique prior works. Unfounded criticism can harm your paper. Here's where to

formulate your research question and justify the investigation. Your work is unusual and there is no direct literature addressing this topic, so mention that at the end of the review. Add a few sentences on how your research will advance knowledge. your research paper's literature review should include research limitations, questionnaires, and investigations.

An improved ResNet model reduces object identification faults due to inadequate light. ResNet uses skip connections to eliminate disappearing explosive gradients [1]. An interleaved SEPIC converter controlled by an optimised PI controller and a three-phase PWM rectifier controlled by a conventional PI controller can track MPPT from solar and wind, allowing regulated dc voltage from both sources [2]. A compact conformal coplanar benz-shaped circular ring patch antenna operates in C- and X-band. [3]. A Pine Shaped Dual-Band frequency reconfigurable Antenna can be designed to operate between 2.12 GHz to 5.27 GHz [4]. The molecule, PA-P-ester shows high antibacterial activity against pathogenic gram-negative bacteria such as Salmonella typhimurium and Escherichia coli [5]. An ERP-PLM (Entrepreneur Resource Program- Product Lifecycle Management) the system is proposed along with the new innovative technology, i.e. IoT in the industry [6]. This proposed the system enhances the sustainability and productivity of MSME in the Indian market, which leads to achieving greater profit and providing a good quality product as well. Blockchain Technology, which has the capacity to address the security challenges in IoT applications [7]. A compact dual-band fork-shaped monopole antenna. Dual-band operation covering 2.4–2.484 GHz (Bluetooth) and 3.1–10.6 GHz (UWB) frequency bands are obtained by using a fork-shaped radiating patch and a rectangular ground patch [8]. The microstrip patch antennas have some major disadvantages as narrow bandwidth, low gain and low power handling capability, low efficiency, large ohmic loss in the feed structure of arrays, poor end-fire radiator except tapered slot antennas [9]. The RT and FPGA capabilities along with onboard memory and built-in WiFi allow us to deploy applications remotely and run them “headlessly” (without a remote computer connection). Three connectors (two NI myRIO expansion ports [MXP] and one NI mini systems port [MSP] that is identical to the NI myDAQ connector) send and receive signals from sensors and circuitry that students need in their systems [10]. An embedded system has been developed which senses the toxic gases inside the vehicle and intimates the person inside the vehicle, the system even sends an indication message to the authorized user through GSM such that remedial measures could be easily taken for the person inside a vehicle [11]. Image compression techniques are needed to store large digital images for transmission which requires high bit-rates in low bandwidth channels. A digital computer requires large storage to store image, audio and video files of different formats [12]. Based on the review of mentioned articles, we suggest how to write different core sections of research articles. If your paper has 3000 words, strive for a 600-word introduction [13].

II. Materials and Methods

The methods section should describe the experiment and explain why specific methods were chosen. The methods section should be detailed enough for readers to reproduce the experiment and results. Your materials and methods section determines the paper's scientific rigour, so describe your experiment in detail. Subdivide the main section to explain procedures step-by-step. Subhead procedures chronologically. Since you're reporting on an experiment, use past tense. How was the research question answered and how were the results analysed? Explain the choice of statistical methods for significance testing. Your paper's methods section should include Experimental setup, Data collection, Data Analysis, Statistical testing, assumptions, and the experiment's goal.

III. Results and Discussion

Results and discussion are difficult to write. This section may contain a lot of scientific data that must be presented clearly and concisely. A results section summarizes your research. Depending on the journal, results and discussions can be combined or organized separately. Improve readability and clarity with subheadings. Title tables and figures. Present results as figures and tables and refer to them when discussing. This section should highlight significant or interesting findings and P values. Include negative results and paper flaws. If you don't discuss research flaws, reviewers will criticize you. Don't be afraid to highlight them for a discussion section. In your research paper's results and discussion section, include findings, previous research, work limits, arguments, speculations, and conclusions.

IV. Conclusions and Future Work

A research paper's conclusion should be well-written. The conclusion resembles the intro. You restate your goals and objectives and summarise the evidence. You can do this in one paragraph with three main points and one takeaway. Your conclusion shouldn't include new arguments. You can ask open-ended questions to frame the next study. Here you can record future work ideas. What could be done more? What's next? What else needs research? Spend time writing the conclusion so you can end on a high note. Your paper's conclusion should include an overall summary and further research.

V. Acknowledgements:

Acknowledgements can be written in several different ways. Here is where you can express your gratitude to everyone who contributed to your work. You are free to use either a formal or casual tone. The appendix is a great place to put extra information that will be referenced later in the text. You can include whatever you want in the appendix. Data can be presented in the form of numbers, tables, costs, budgets, maps, etc. Put in the appendix anything that is necessary for the paper but could be distracting to the reader.

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