

## Structure of Research Article

Note: smaller version of research articles with some result findings can be used for conference paper writing.

### Paper title:

1. Paper title should not be more than 20 words.
2. Title should be concise to your research work.
3. Specify the important keywords related to your research
4. Do not use shortcut or abbreviations in title.
5. Avoid describing methodology.
6. Avoid question marks.

### Abstract (First impression of your paper but write at last)

1. Abstract content should not be more than 300 words.
2. Describe the research problem in brief.
3. Aim of your research topic and solution should be brief.
4. Result/Significance of your study.
5. Conclusion: clarity of your research work.
6. Selection of keywords are usually done using Scopus website or check which are more commonly used keywords are they will help in search system while siting your work.

Note: Try to address 5W and 1-H i.e, Why, What, Where, When, Whom and How.

### Format of Abstract:

- First two lines talk about area of research (broader area)
- Next two lines, discuss the problem chosen
- Next two lines about the proposed method like what algorithm you are using to solve.
- Next two lines tell how you have done and comparing what results.
- Then tell about the results obtained.

## I. Introduction (write at the end)

1. Introduction to topic. (Why, When, Whom, and Where) (min of 1 para)
2. What is the problem in that topic or area? (min of 1 para)
3. How other researchers have addressed this topic with reference? (In brief)
4. Proposed solution overview. (List the specific contribution in this paper)
5. Organization of the sections of the document.

Note: On a whole, introduction should be around min of 5 para and max of 7 para.

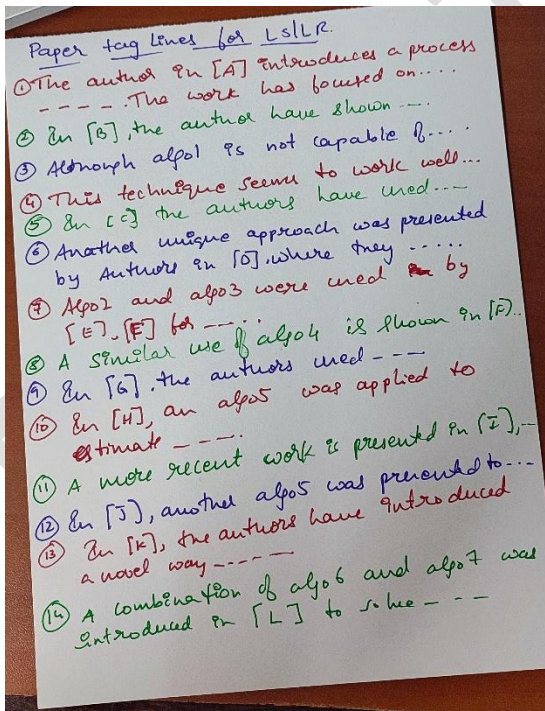
## II. Related work/Literature Survey

1. Identified topic should be current topic, and selected journal papers for literature survey should be from recent years.

2. Identify the perspective for the research topic (2 to 4 research areas). (Such as Key management, Encryption technique, time complexity, Security level)
3. Group the papers related to particular perspective.
4. In each paper try to identify loop hole.
5. While writing review for particular paper, first mention which problem they have chosen to solve using which technique. Next address the loop hole in that paper by using keywords such as *However, They have not addressed, The drawback*, etc.
6. List the loop hole identified in literature survey and lastly condense it to 2 to 3 research gaps.
7. Use the keywords such as *Lack of, No comprehensive approach, Inadequate technique*.

### Sample LR (my style of writing):

"First\_Author\_Last\_Name *et al.*, [1] have proposed a method XYZ to address the issue ABC. They have used AAAA algorithm to provide proof under BBBB method. The work is simulated using SSSS simulator for the environment of 100 x 100 mtr using 100 node. Through their simulation it is observed that they have obtained good results under parameters like PPPP1, PPPP2 etc. But the work lack the concentration on issue IIII." (few more styles of writing literature survey paragraphs are in below image)



### III. Background

1. Write a short note on sub-topics of your research area to give background knowledge to the reader (cite the reference paper).
2. Specify the topic is (optional)

3. World wide / regional relevance (if needed)
4. Broad / specialized audience

#### **IV. System Model**

- a. Overall methodology diagram with brief explanation. (How)
- b. Problem Definition
  - i. Define the problem identified through section II
- c. Network Model
  - i. Explain the setup in brief (like environment)
  - ii. Research objectives (minimum of 3)
  - iii. Notation tables

#### **V. Methodology (you can write your name algorithm name)**

1. The aim of your proposed method/algorithm in brief. (What)
2. Split the overall methodology into 2-3 sub topics or steps in methodology. (Where)
3. Explain sub-topics or Steps, one by one in detail with Flowchart or Diagram or Algorithm or Equation or Table. (why, what, How, where, when and whom)
4. Optional: Case study with sample expected output.

#### **VI. Experimental set-up and Performance analysis**

##### **A. Experimental Setup**

1. Explain the experimental set-up and its configuration parameters.
2. Conduct the sub-experiments (input parameters) before conducting main experiment because to study the relationship of input parameters with the method and its effects on main experiment.
3. Describe the different scenario's set-up and its parameters (if any)
4. Specify the the tool with version or model used in your experiment.
5. Define how you conducted the experiment ?

##### **B. Performance/Result Analysis**

1. Mention the performance assessing key parameters. (with equation)
2. Results should be drawn in table or graph.
3. Try to use Origin software for graphs

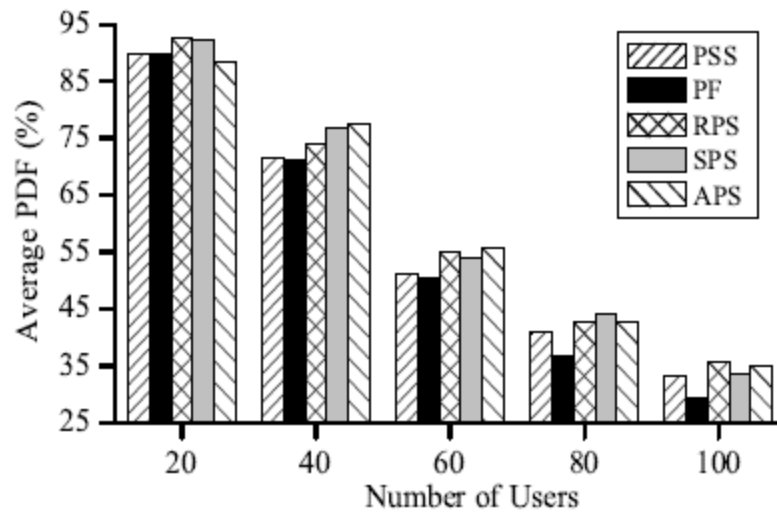


Figure 1: Average PDF of PF, PSS, RPS, SPS and APS methods for varying number of users in LTE network.

**How to infer from a graph (x-y graph)?** (Note: by following below method we can fill around 150 to 250 words of each graphs)

1. First the figure or graph or table should be described (result of, y-axis and x-axis).  
For example: Figure 1 shows the comparison of average PDF of the system with various scheduling methods by changing the number of users in LTE network.
2. Initial observation: Overall changes in result for varying in input parameters.  
For example: The average PDF of the system is good when less number of users are in eNodeB network because more resource blocks are available compared to the data traffic generated from the users.
3. Compare the performance of the proposed method with existing methods, if there is variation, give the reason why it is varied.
4. Measure the performance of proposed method compared to existing method in percentage (improved or declined).  
For example: The result of APS illustrates that PDF has improved by 3-4% compared to PSS scheduler, and 4-5% compared to PF scheduler.

## VII. Conclusion

1. Summarize what you did.
  - (a) Begin with research problem.
  - (b) Briefly describe about study design.
  - (c) Summarize the key findings.
2. Interpret your findings
  - (a) similarities and differences.
  - (b) Unexpected/ negative results.
  - (c) limitations

3. How and why it is important?
4. In which other areas your research can be applicable.
5. Drawbacks should be mentioned as future work

## VIII. Reference

1. Each publisher will have their own Bibliography style, follow them for Latex documentation.
2. Else its usually IEEE/Vancouver/Harvard style.

**Before starting any paper make a structure of paper like below so that you will have an idea as to how to proceed. (below is for conference papers and research paper samples contents)**

### Sample-1: for conference paper

1. **Title:** Object detection and localization using deep-learning techniques for prototyping indoor environment navigation
2. **Abstract** (do it at last)
  - a. Key words (do it at last)
3. **Introduction**
  - a. Para-1: 4 lines - General topic  
4 lines - Issue encounter in object detection and localization.  
4 lines - Existing solution – only algorithms to be names and tell their drawbacks
  - b. Para-2: Motivation of the work
  - c. Para-3: Contribution of the work
  - d. Para-4: Organization of paper(last)
4. **Related work**
  - a. 6-8 papers (not more than 10 for conference) (each comprising of one para with 6-8 lines)
5. **Background**
  - a. Write 2 subheading of majorly used methods/algorithms/technique which you are using in your work
6. **System design and problem definition**
  - a. Para-1: System design - if any design is done, put here.
  - b. Para-2: Problem definition
    - i. Objectives
    - ii. Assumption
7. **Proposed Approach/methodology**
  - a. Your work be explained neatly and precisely.
8. **Experiment and result analysis**
  - a. Para-1: Experiments or setup or environment or dataset description can be explained with how you have divided the dataset, epochs or etc
  - b. Results: explain about graphs/tables as explained before in this document.
9. **Conclusion**
10. **References**

**Sample-2: for conference paper**

Task								
1. <b>Title:</b> SWARM: Sanitizer with attendance through remote monitoring								
2. <b>Authors:</b> last								
3. <b>Abstract:</b> last								
4. <b>Keywords:</b> last								
5. <b>Introduction:</b> (max of four paragraphs, with each paragraph of 6 to 8 sentences) <b>Note: any other journal, conference or links you refer to extract information need to be cited as [1], [2] and all those data should be referenced at the end. Will tell you how later.</b> <ol style="list-style-type: none"> <li>Generalized context.               <ol style="list-style-type: none"> <li>Like how Covid has made all of us to have mask and sanitizer.</li> <li>How much plastic is getting accumulated.</li> <li>How it is harming the environment</li> </ol> </li> <li>Motivation.               <ol style="list-style-type: none"> <li>Like how reopening of colleges and university has made all of us use hand glove, mask and sanitize. But many students do sanitize their hand more often.</li> <li>Also mention not all school and colleges have automated hand-sanitizer dispenser as they feel its too cost consuming. So we are designing a cost effective one using Raspberry Pi and Email services.</li> </ol> </li> <li>Contribution.               <ol style="list-style-type: none"> <li>Our contribution in brief.</li> </ol> </li> <li>Structure of the paper (last)</li> </ol>								
6. <b>Review status:</b> ( we describe about existing work, I have few which we had proposed during project proposal, shall update in the document later) Note: not more than 8 paper <ol style="list-style-type: none"> <li>3 papers w.r.t about the proposed of waste disposal</li> <li>3 papers w.r.t existing work of hand sanitizer with flaws</li> <li>2 papers w.r.t raspberry pi + OpenCV based work for hand sanitizer</li> </ol>								
Note: first make a tabular column like below and then we can frame paragraphs. I shall show you how to write paragraphs for this section.								
Sl. No	Paper title	Author names	Year of publication	Keywords	Problem chosen	Methodology	Results	Flaws in work
Once you do this meet me I shall help you to write.								
7. <b>Background study:</b> <ol style="list-style-type: none"> <li>About OpenCV tools used</li> <li>Setup/platform used</li> </ol>								
8. <b>System Design:</b> <ol style="list-style-type: none"> <li>This we already have, I shall provide the image and write up too.</li> </ol>								
9. <b>Methodology:</b> <ol style="list-style-type: none"> <li>Good short and sweet methodology as conference paper right so no need to explain in detail.</li> </ol>								
10. <b>Experimental setup and result analysis</b> <ol style="list-style-type: none"> <li>This shall be with a lot of images outputs and explanations.</li> <li>Every step should be photographed and explained.</li> </ol>								
11. <b>Conclusion.</b> (last)								
12. <b>References</b>								

**Sample-3: for conference paper**

<b>Task</b>	
1. <b>Title:</b> last	
2. <b>Authors:</b> last	
3. <b>Abstract:</b> last	
4. <b>Keywords:</b> last	
5. <b>Introduction:</b> (max of four paragraphs, with each paragraph of 6 to 8 sentences) <b>Note: any other journal, conference or links you refer to extract information need to be cited as [1], [2] and all those data should be referenced at the end.</b> <ol style="list-style-type: none"> <li>Generalized context. <ol style="list-style-type: none"> <li>Autonomous vehicle (AV)</li> <li>Cybersecurity issue in AV</li> <li>Adaptive cruise control (ACC) attacks (narrow down to DoS)</li> </ol> </li> <li>Motivation. <ol style="list-style-type: none"> <li>Tell about how in-network communication in AV are more prone to cyber attacks.</li> <li>Also mention about lack of existing dataset</li> </ol> </li> <li>Contribution. <ol style="list-style-type: none"> <li>Our contribution in brief.</li> </ol> </li> <li>Structure of the paper (last)</li> </ol>	
6. <b>Review status:</b> (we describe about existing work) <b>Note: not more than 10 paper ( how to write content here...please follow what I have shared to other two boys in whatsapp).....latest papers max of 2020, 2021, 2022</b> <ol style="list-style-type: none"> <li>3-Infotainment DoS attack</li> <li>3-General DoS attack on AV</li> <li>4- how DoS attack is handled/identified using DL/ML</li> <li>Among above, one is that LSTM paper and dataset wala paper to explained and cited.</li> </ol> <b>Sample RS (my style of writing):</b> “First_Author_Last_Name et al., [1] have proposed a method XYZ to address the issue ABC. They have used AAAA algorithm to provide proof under BBBB method. The work is simulated using SSSS simulator for the environment of 100 x 100 mtr using 100 node. Through their simulation it is observed that they have obtained good results under parameters like PPPP1, PPPP2 etc. But the work lack the concentration on issue IIII.”  A few more in next page.	
7. <b>Background study:</b> <ol style="list-style-type: none"> <li>Model can be explained here...Existing LSTM</li> <li>Some ML stuff can be explained.</li> <li>Make it 3 para with 8 to 10 sentences and equations.</li> </ol>	
8. <b>System Design:</b> <ol style="list-style-type: none"> <li>Give some block diagram of your methodology and explain.</li> <li>They say “One picture is equal to 1000 lines” so keep diagram neat and explain it well.</li> </ol>	
9. <b>Methodology:</b> <ol style="list-style-type: none"> <li>Good short and sweet methodology as conference paper right so no need to explain in detail.</li> </ol>	
10. <b>Dataset collection and Result analysis</b> <ol style="list-style-type: none"> <li>Tell about the dataset under the subheading.</li> <li>Results in tabular column or graphs.</li> <li>Below is the way to write the graphs from my Journal Writing Documents which I will share when you are about to start journal writing.</li> </ol>	
11. <b>Conclusion.</b> (last)	
12. <b>Reference</b>	IEEE Format

## Sample-4: for research article

1. **Title:** Lightweight Encryption Decryption Scheme (LEDS) for resource constrained devices of the Internet of Things
2. **Abstract** (last)
  - a. Key words (last)
3. **Introduction**
  - a. General IoT (Use protocol image)
  - b. Security concern of IoT
  - c. ECC, RSA, AES etc use in IoT
  - d. Motivation of using different curves
  - e. Contribution
  - f. Organization of paper(last)
4. **Related work**
  - a. 10-15 (each comprising of one paragraph)
    - i. Related ECC curves + authentication and data integrity (check protocol and DAC3 report)
    - ii. Two curves
    - iii. Dynamic curve
5. **Background**
  - a. ECC use in ECDSA+ECDHA+ encryption decryption (cite our work)
  - b. BLAKE2b (cite our work)
  - c. Choice of curves
6. **System design, network model and problem definition**
  - a. System design
  - b. Network model
  - c. Problem definition
    - i. Objectives
    - ii. Assumption
7. **Proposed Approach**
  - a. Lightweight Encryption Decryption Scheme
    - i. Key generation
    - ii. Key exchange
    - iii. Encryption process
    - iv. Decryption process
8. **Mathematical model and energy model (optional)**
9. **Implementation and performance analysis**
  - a. Tell about setup
  - b. Graph
  - c. Tables
10. **Conclusion**
11. **References**



1. Once the paper is done or at least the abstract is roughly ready, use following links to find apt journals under Elsevier, Springer, IEEE, ACM, T&F, IET, Wiley etc.
  - a. [https://journalfinder.elsevier.com/?\\_cf\\_chl\\_captcha\\_tk=27dd1ca4839b3d1246fd074a6ae9bdb9cd24bbe4-1615973226-0-AYDHEsTqgkf8grJGgpUDhR0POPktXmkbTT4LsnWNb3URNIX\\_NF5Qq1UYdOJvcPO9IFtligGZkswNDsC2E3oHLb8XDYka0JDPHiosYT4cpNVwZV9IPVXOCpY5sM9qzmj2MUUYEsBHjICtE23qlhYMIjzjLAY83qCzjIOPsvqrSoo5-jF4K8Tuvpn2uhSMODjfU3PbA-mh\\_QiCAVSErRIgXjW\\_F52gGn\\_JSIvPtCganlrZV3CJmGluhjc9OY\\_5nd9wWNifzWJErnx34X11Gtw2gnRsF8qy5N08g76WtPTygI5UtvdfLxGfuX6RK9A52BFPy8z03feaza\\_2be01PGymXhw9jP-pD2IJv6pa5EmcAkXQvXlQuamMHIv04efx5QM23YTRKYJFhYdwGq2j1JnzzXovj0zIrfWwogZRmKhDt93-WB5veP1H\\_Z2TEOfnxIA8KOG07VbvPnTNKgXk\\_xQl\\_G2dV1LLlfoRJ8Nia9dpJMzwesG9Mo84dW7XrCrW8yeKYNudBcGMglIxMk-P2lf5x-0LDSimRqwrFgsZzvPTld8](https://journalfinder.elsevier.com/?_cf_chl_captcha_tk=27dd1ca4839b3d1246fd074a6ae9bdb9cd24bbe4-1615973226-0-AYDHEsTqgkf8grJGgpUDhR0POPktXmkbTT4LsnWNb3URNIX_NF5Qq1UYdOJvcPO9IFtligGZkswNDsC2E3oHLb8XDYka0JDPHiosYT4cpNVwZV9IPVXOCpY5sM9qzmj2MUUYEsBHjICtE23qlhYMIjzjLAY83qCzjIOPsvqrSoo5-jF4K8Tuvpn2uhSMODjfU3PbA-mh_QiCAVSErRIgXjW_F52gGn_JSIvPtCganlrZV3CJmGluhjc9OY_5nd9wWNifzWJErnx34X11Gtw2gnRsF8qy5N08g76WtPTygI5UtvdfLxGfuX6RK9A52BFPy8z03feaza_2be01PGymXhw9jP-pD2IJv6pa5EmcAkXQvXlQuamMHIv04efx5QM23YTRKYJFhYdwGq2j1JnzzXovj0zIrfWwogZRmKhDt93-WB5veP1H_Z2TEOfnxIA8KOG07VbvPnTNKgXk_xQl_G2dV1LLlfoRJ8Nia9dpJMzwesG9Mo84dW7XrCrW8yeKYNudBcGMglIxMk-P2lf5x-0LDSimRqwrFgsZzvPTld8)
  - b. <https://journalsuggester.springer.com/>
  - c. <https://authorservices.wiley.com/author-resources/Journal-Authors/find-a-journal/index.html>
  - d. [https://authorservices.taylorandfrancis.com/publishing-your-research/choosing-a-journal/journal-suggester/?\\_cf\\_chl\\_captcha\\_tk=eb855052a454d1cad8de4e5ff136cd1283f3068e-1615973246-0-AS0oYdlgwcCn-WBkxqS6E1LmD9eYoXhDOPQZW51RrtM47-iv3-qkBenJTEpIKQ2N2\\_NrtUxNKVlpGjh2oteE0Qac1MkVbH9VkbfdxR2fXpPHNirhxtCeU99EgejIouwfWG5nWiACrgxCS8LydaxscSTraNao4U-Yq7Ebjx82jnzx2ULeMjxfhRotl4pASWtTBiEpFuYzYzFvS9z0XBNf24RINfteOqbIwscSdCgVqc7tJiPqC3qmnPv9NIF4hlMS5PWmXs0WNZbGkd9gdTkfxHeUIYD2jj5ucoX6vWOYEgHss7uaF0C\\_lq5q9XBEDQrMOpG1TdjQWvUhrY9lbTunqZMkRaBwqvLt3iATHLt0NXujsEbcubAWK6p55aDulyaEOgJrXFgaFEF9tkTluyMNnKwuoiRxWOUlLZBQMI6coDjvdJzHGp15LKAJqimJrlhG3nJ0t27yoC7s63DEHNODICYAfwcezxG8-OVAGZB-VD4KBxfULnZPouqQ\\_JxJrNKbuYaQiaHDqTenPLPStTlje70pI5VsIeHChYoXX3JRvHukVNrZFFqz2ifco-ASuDIYnsTErR\\_gW\\_BJ9T4yN87xW6ttGlq\\_AG\\_wAHjFAh7Kv5Em4Ln9d3biyWcx7B01LOj0A](https://authorservices.taylorandfrancis.com/publishing-your-research/choosing-a-journal/journal-suggester/?_cf_chl_captcha_tk=eb855052a454d1cad8de4e5ff136cd1283f3068e-1615973246-0-AS0oYdlgwcCn-WBkxqS6E1LmD9eYoXhDOPQZW51RrtM47-iv3-qkBenJTEpIKQ2N2_NrtUxNKVlpGjh2oteE0Qac1MkVbH9VkbfdxR2fXpPHNirhxtCeU99EgejIouwfWG5nWiACrgxCS8LydaxscSTraNao4U-Yq7Ebjx82jnzx2ULeMjxfhRotl4pASWtTBiEpFuYzYzFvS9z0XBNf24RINfteOqbIwscSdCgVqc7tJiPqC3qmnPv9NIF4hlMS5PWmXs0WNZbGkd9gdTkfxHeUIYD2jj5ucoX6vWOYEgHss7uaF0C_lq5q9XBEDQrMOpG1TdjQWvUhrY9lbTunqZMkRaBwqvLt3iATHLt0NXujsEbcubAWK6p55aDulyaEOgJrXFgaFEF9tkTluyMNnKwuoiRxWOUlLZBQMI6coDjvdJzHGp15LKAJqimJrlhG3nJ0t27yoC7s63DEHNODICYAfwcezxG8-OVAGZB-VD4KBxfULnZPouqQ_JxJrNKbuYaQiaHDqTenPLPStTlje70pI5VsIeHChYoXX3JRvHukVNrZFFqz2ifco-ASuDIYnsTErR_gW_BJ9T4yN87xW6ttGlq_AG_wAHjFAh7Kv5Em4Ln9d3biyWcx7B01LOj0A)
2. Once we upload title, abstract and keywords, they give complete list. In that select which is apt for you. Some website gives open access (OA) or subscription too. You can choose accordingly.
3. Kindly see the time line of each journals like when they will accept? Acceptance rate? Etc and the chose.
4. Also check if the journal is present in Scopus and Scimago journal ranking to know impact factor and quartile (Q1, Q2, Q3, Q4)
5. Please use standard template provided by respective conference or journals.
6. Use Grammarly to English check and please write every word by self. If needed synonyms check here <https://www.thesaurus.com/>
7. And the most important stuff is that we should have patience to wait for response in case of research articles.
8. All the best for Re-Searching.
9. Partial document was passed on from a senior during 2018, documented and reworked on 17-03-2021, updated on- 02-04-2023.