



# COMPUTER SCIENCE PROJECT 1

**2023**

# Session Outline



1. How to choose a Research Topic. How to settle and narrow down on what you want to pursue.
2. Common mistakes to avoid when writing a research problem.
3. Title Creation and Selection

# Choosing a topic: Preliminaries

1. Start with the end in mind. Try to reverse your thinking from the end product.
2. Choose a topic that will be of interest to the scientific community and research in general i.e when you get to the defense stage

*Caution:* "Just because it has not been done before is no justification for doing it now." Peter Attiwill , Editor in Chief, Forest Ecology and Management

# Choosing a topic: Preliminaries



In topic selection, ask yourself the following questions

1. Is it focusing on something new or current and interesting or compelling?
2. Does it have potential to provide solutions to any difficult problems or challenges within an organization, sector or society?
3. Do you know the latest results in this area or field? (have a list of the top journals and research in this area)

# Choosing a topic: Preliminaries Cont...

In topic selection, ask yourself the following questions

1. Will the results of this issue be interesting or useful to others in the scientific field or another field?

If all answers are **YES**, then you have a good research topic worth pursuing. Start exploring and finding relevant information and literature around it.

# Common Mistakes around Research



These Mistakes evolve around 3 areas

1. Failure to provide the narrative hook (back this up with evidence; statistics etc)
2. Failure to demonstrate clearly the knowledge gap or gaps in existing literature
3. Failure to point out the significance of addressing these knowledge gaps (addressing research problem)

# Conclusion



These Mistakes evolve around 3 areas

1. Have realistic expectations of what is involved in doing a third year project.
  - a. The project runs for just a semester
  - b. The project is CRUD based
  - c. Should solve problem with technology skills such as coding
2. Aim for a working, professional relationship with your supervisor, this will save you a lot of time in solving your problems.
3. Try to keep your end goal in mind and stay ahead of the game



# LESSON I

## TOPIC SELECTION



# Research Topic



Strategies for topic formulation by Wilkinson (1991)

1. Be brief and avoid wasting words . Eliminate unnecessary words, e.g “An Approach to ...,” “A Study of ...,” ‘An investigation of...’ etc
2. Use a **single title** or a **double title**. An example of a double title would be “Uber it: A Taxi Hailing Application for University Students .”

# Research Topic Cont...



## Strategies for topic formulation by Wilkinson (1991)

1. Title should be between 12 18 words (eliminate most articles and prepositions, include the focus or topic of the study; the fewer the better)
2. Ensure the topic CAN and SHOULD be researched

# Research Topic



Topic Selection. The following are some of the steps that should be followed in research topic selection.

- Identify what interests or puzzles one in a Study.
  - a. In Computer Science, there are trending topics that you should look at. For example: Machine Learning, Edge Computing, Quantum Computing, IoT, Blockchain etc. look for what will keep you interested till the very end.

# Research Topic



Topic Selection. The following are some of the steps that should be followed in research topic selection.

- Identify keywords for the topic.
  - a. Keywords in Machine Learning can be in relation to e.g. ... using KNN, Classification, Regression, Recognition etc.
- Define the Topic
  - a. This involves analyzing selected keywords keenly. Should narrow down to what the researcher wants to concentrate on.

# Research Topic



Topic Selection. The following are some of the steps that should be followed in research topic selection.

- Formulate the topic.
  - a. Get articles, papers or journals that are relevant to the topic. This information should assist the researcher to develop clarity over the topic selected.
  - b. Take notes, paraphrase and summarize what has been read on relevant materials. This will assist you with the literature review.

# Research Topic



## Qualities of an effective Research Topic

- Researchable
  - a. It should be a subject where the research instruments can be easily formulated.
- Captivates the interest of the researcher
- Makes a contribution to the body of knowledge
- Provocative
  - a. Open to varied views and interpretations
- Clear and focused
  - a. Should not be vague or alien to the researcher.

# Research Topic



Sample topics to can come up with.

- The topic should be descriptive such that Reading the topic alone, should give the reader an idea of the problem, the solution, and how the solution will be implemented
  - a. Have a maximum of upto 18 words.
- Some of the examples can be: - these are examples of single topics
  - a. Sound Analysis Prototype to Enhance Physical Security in Academic Institutions using Recurrent Neural Networks
  - b. Revisiting the Primacy of English in Zero-shot Cross-lingual Transfer

# Research Topic



Sample topics you can come up with.

- Name: Description [might be an app or a web based solution]. These are examples of double topics
  - a. Uber: A Mobile Based Taxi Hailing Application
  - b. Emmah: An Intelligent Chatbot that assists travellers in Booking Bus Tickets
  - c. OkwuGbé: End-to-End Speech Recognition for Fon and Igbo
- Using Case Studies. Another example of a double topic
  - a. A Web Based Application to Enhance Service Delivery in Marginalised areas: A Case of Northern Kenya



# Research Topic



## Todo

- Selection of Supervisors will be done next week.
- Meet with your supervisor and discuss the research area you would like to pursue. (You should have paired already)
- Agree on the topic following the guidelines learnt in class
- Update the selected topic on the shared Google Sheet by next physical class meeting.