

BRMK557 - Research Methodology and IPR

Credits :03

Module-2

- Literature Review and Technical Reading, New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar, Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet.
- Attributions and Citations: Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation, Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged, Acknowledgments in, Books Dissertations, Dedication or Acknowledgments

Preamble-Literature Review

- The primary goal of literature review is to know the use of content/ideas/approaches in the literature to correctly identify the problem that is vaguely known beforehand, to advocate a specific approach adopted to understanding the problem, and to access the choice of methods used. It also helps the researcher understand clearly that the research to be undertaken would contribute something new and innovative

New and Existing Knowledge

Existing Knowledge:

- **Background Information:** This encompasses the established facts, theories, and principles that are already known within a particular field. Existing knowledge forms the foundation upon which new research is built.
- **Literature Review:** Before conducting new research, scholars typically review existing literature to understand what has already been studied, what methodologies have been used, and what conclusions have been drawn by previous researchers.
- **Established Theories:** Theories that have undergone rigorous testing and have gained acceptance within a scientific community are part of existing knowledge.

New Knowledge

- **Original Research Findings:** This refers to the results and conclusions obtained through new research studies or experiments. It represents novel insights, data, or interpretations that contribute to the existing body of knowledge.
- **Innovative Ideas and Concepts:** Researchers may introduce new concepts, frameworks, or ideas that challenge or expand existing theories.
- **Technological Advances:** In fields like science and technology, new knowledge often includes the development of new technologies, methodologies, or tools that can be used to further explore and understand the world.

Good Literature Survey

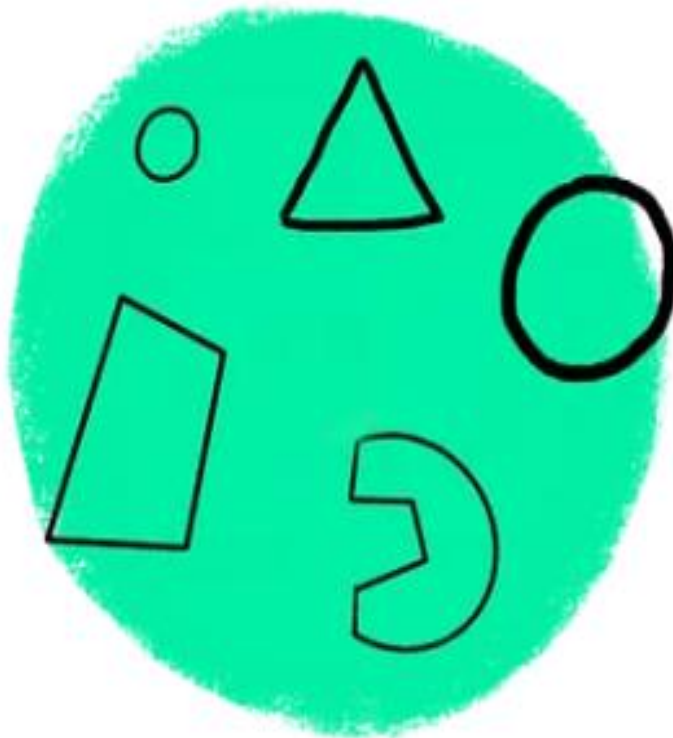
- Generally, a good literature survey is the first expectation of a supervisor from the research student, and when done well can create a good impression that the state of art in the chosen field is well understood.
- Identify the major topics or subtopics or concepts relevant to the subject under consideration.
- Place the citation of the relevant source (article/patent/website/data, etc.) in the correct category of the concept/topic/subtopic (with the help of a , for example).
- A comprehensive literature survey should methodically analyze and synthesize quality archived work, provide a firm foundation to a topic of interest and the choice of suitable research methodologies, and demonstrate that the proposed work would make a novel contribution to the overall field of research.

Analysis and Synthesis of Prior Art

- **After collecting the sources**, usually articles, intended to be used in the literature review, the researcher is ready to break down each article and identify the useful content in it, and then synthesize the collection of articles
- **A researcher should analyze** the relevant information ascertained in Table by undertaking the following steps:
 - (i) Understanding the hypothesis, (ii) Understanding the models and the experimental conditions used, (iii) Making connections, (iv) Comparing and contrasting the various information, and (v) Finding out the strong points and the loopholes.

Analysis

Breaking something down into parts



Synthesis

Combining separate elements into a whole



Literature Review Grid

2 Literature Review and Technical Reading

	Source 1	Source 2	...	Source M
Topic 1		✓		
Topic 2	✓			✓
⋮				
⋮				
Topic N	✓	✓		

Here are a few criteria that could help the researcher in the evaluation of the information under study

- **Authority:** What are the author's credentials and affiliation? Who publishes the information?
- **Accuracy:** Based on what one already knows about the topic or from reading other sources, does the information seem credible? Does the author cite other sources in a reference list or bibliography, to support the information presented?
- **Scope:** Is the source at an appropriate comprehension or research level?

Bibliographic Databases

- Bibliographic databases refer to abstracting and indexing services” useful for collecting citation-related information and possibly abstracts of research articles from scholarly literature and making them available through search.
- A researcher should be able to quickly identify the databases that are of use in the idea or problem that one wishes to explore

Web of Science

- Web of Science (formerly known as ISI or Thomson Reuters) includes multiple databases, as well as specialized tools. It is a good search tool for scholarly materials requiring institutional license and allows the researcher to search in a particular topic of interest, which can be made by selection in fields that are available in drop down menu such as title, topic, author, address, etc
- Web of Science is a multidisciplinary citation database that provides access to a vast collection of scholarly literature, including articles, conference proceedings, and other research materials. Developed by Clarivate Analytics, Web of Science is widely used by researchers, academics, and institutions for bibliometric analysis, citation tracking, and evaluating the impact of research publications.

Key features of Web of Science include:

- **Citation Indexing:** Web of Science allows users to track citation patterns and analyze the impact of scholarly articles by providing citation counts and references. This feature is valuable for assessing the influence and importance of a particular research work within the academic community.
- **Multidisciplinary Coverage:** The database covers a broad range of disciplines, including science, technology, medicine, social sciences, arts, and humanities. It includes content from various academic journals, conference proceedings, and other scholarly sources.
- **Journal Impact Factor:** Web of Science calculates and provides the Journal Impact Factor (JIF) for many indexed journals. The JIF is a measure of a journal's average citations over a specific period and is often used to assess the journal's prestige and influence.

Key features of Web of Science include

- **Author and Institution Profiles:** Researchers can create profiles on Web of Science to manage their publications, track citations, and showcase their research output. Similarly, institutions can use the database to analyze the research productivity and impact of their researchers.
- **Research Analytics:** Web of Science offers tools and features for bibliometric analysis, allowing users to identify trends, patterns, and collaboration networks within the scholarly community.
- **Integration with Other Tools:** Web of Science integrates with other research management and analysis tools, facilitating a seamless workflow for researchers and institutions.

Know this

- It's important to note that Web of Science is one of several academic databases available, alongside others such as PubMed, Scopus, and Google Scholar. Each database has its strengths and limitations, and researchers often use a combination of these resources to ensure comprehensive coverage of the literature relevant to their field of study

Google and Google Scholar

- Google is a great place to start one's search when one is starting out on a topic. It can be helpful in finding freely available information, such as reports from governments, organizations, companies
- **Limitations**
- It's a "black box" of information. It searches everything on the Internet, with no quality control—one does not know where results are coming from.
- There are limited search functionality and refinement options.

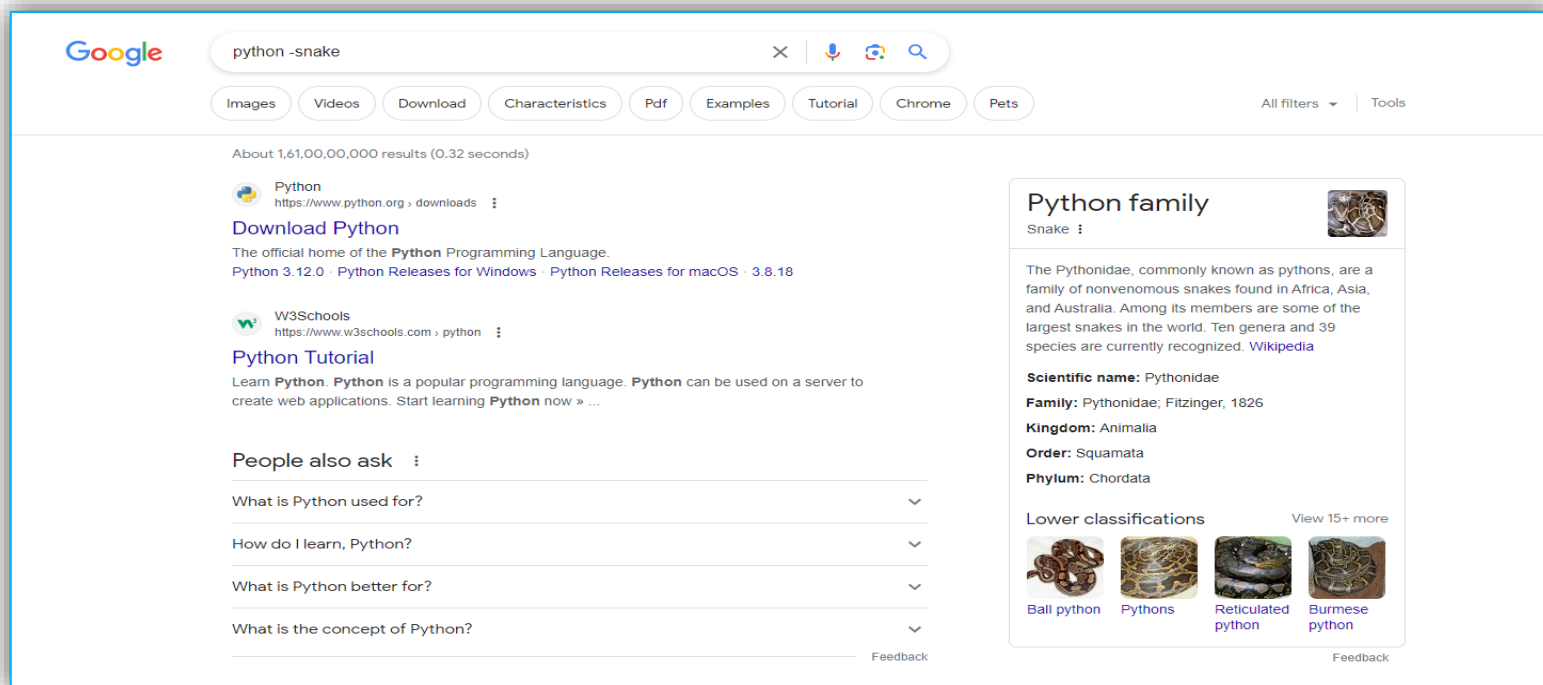
Google Scholar

- Some of the results are not actually scholarly. An article may look scholarly at first glance, but is not a good source upon further inspection.
- It is not comprehensive. Some publishers do not make their content available to Google Scholar.
- There is limited search functionality and refinement options.

Search Operators

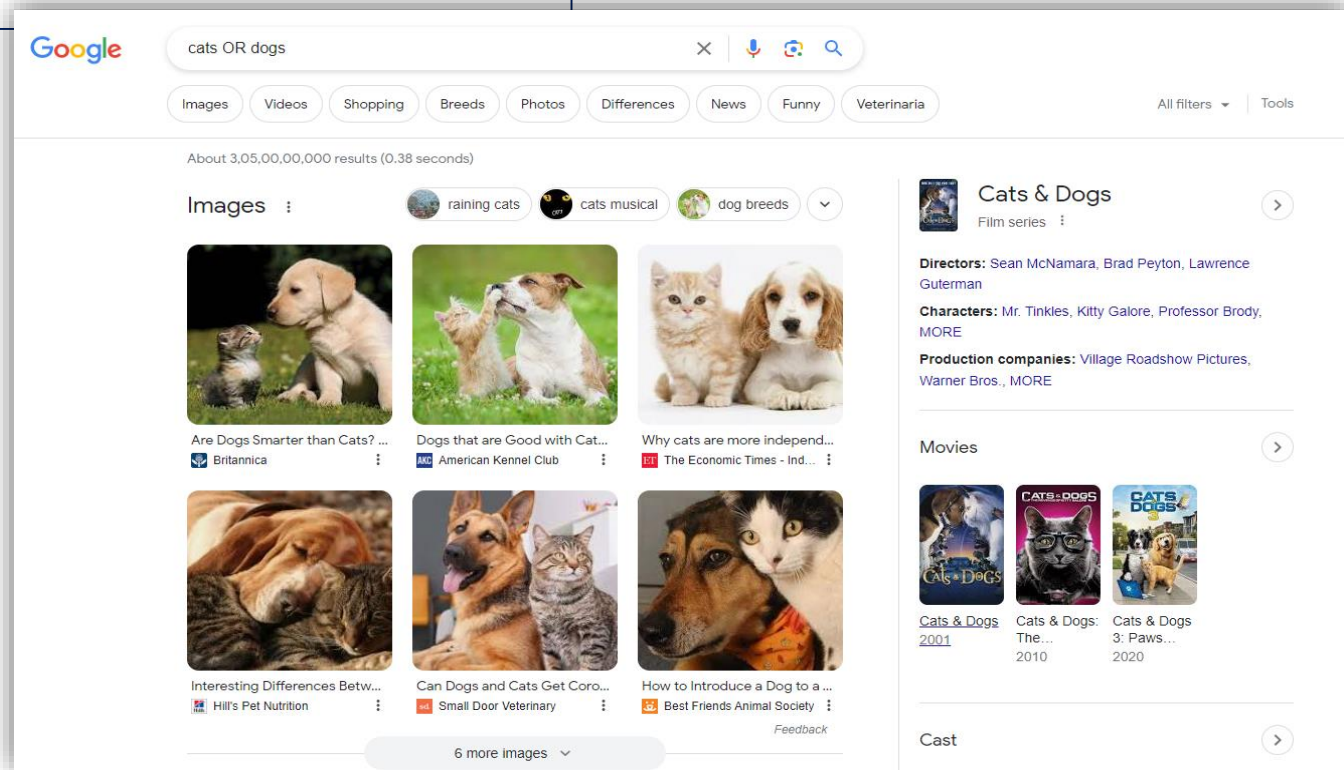
- Quotation Marks (""): Use quotation marks to search for an exact phrase. For example, "climate change" will only return results where these two words appear together in that order.
- Example: "artificial intelligence"
- Minus Sign (-): Exclude a specific word from your search by placing a minus sign in front of it. This is useful for refining results by excluding irrelevant terms.
- Example: python -snake
- Site Operator (site:): Limit your search to a specific website or domain.
- Example: machine learning site:wikipedia.org
- OR Operator (OR or |): Search for pages that may have one of several words. This is useful for broadening your search.
- Example: cats OR dogs
- Asterisk (*): Use an asterisk as a wildcard to represent any word or words in a phrase.
- Example: sustainable * practices

Minus Sign (-): Minus Sign (-): Exclude a specific word from your search by placing a minus sign in front of it. This is useful for refining results by excluding irrelevant terms.

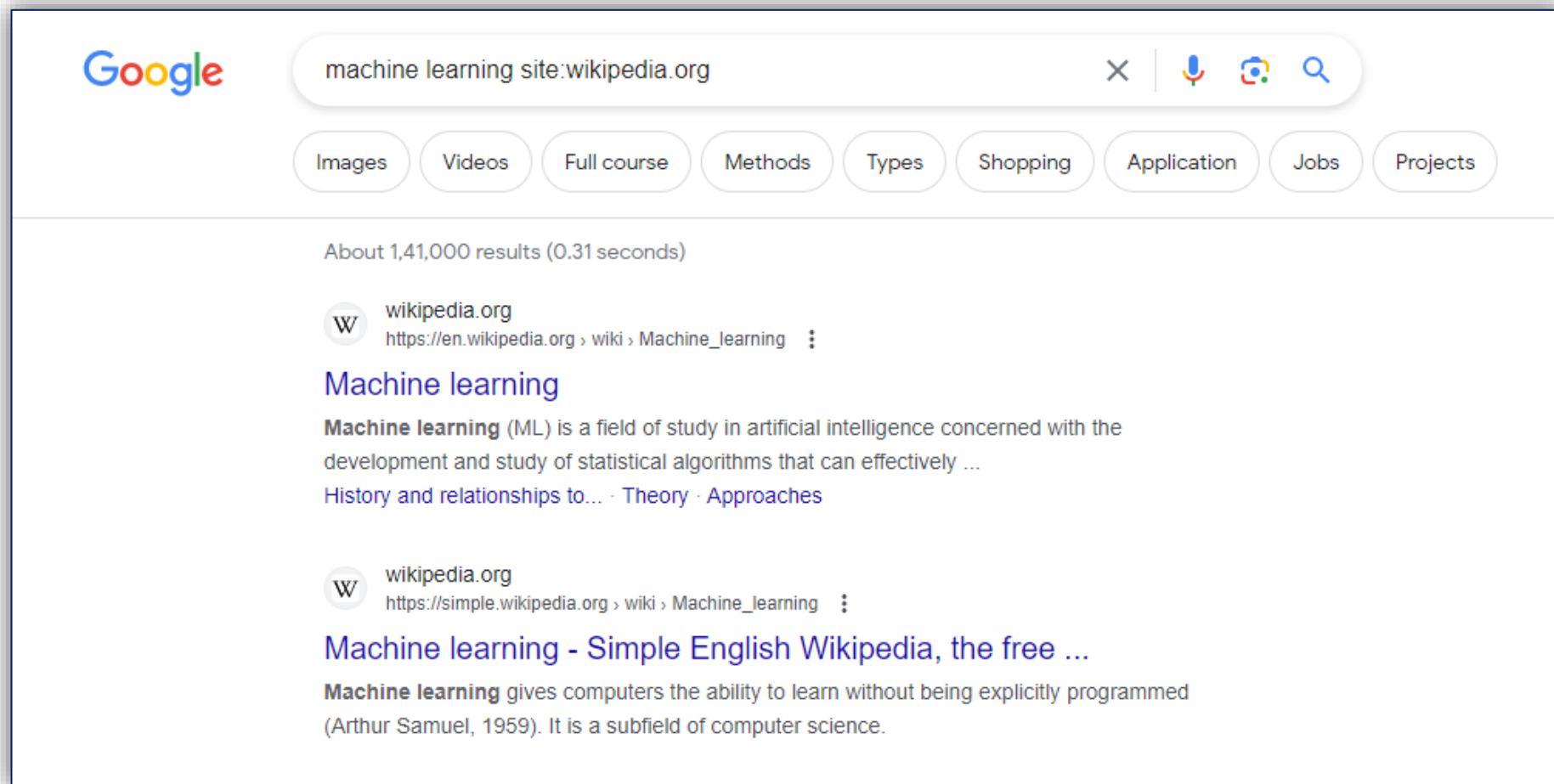


OR Operator (OR or |): Search for pages that may have one of several words. This is useful for broadening your search.

Example: cats OR dogs

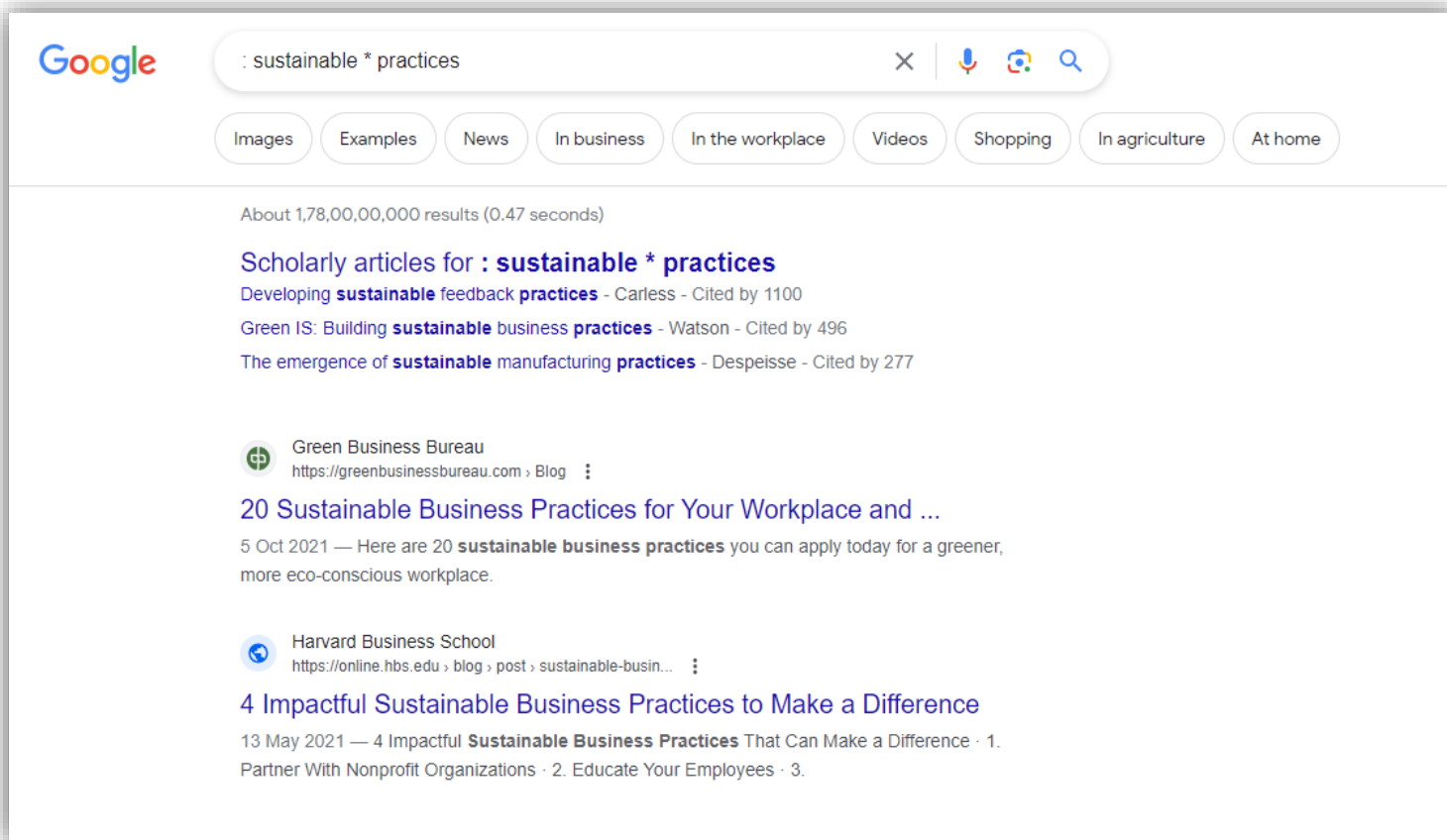


Example Site Operator (site:):Site Operator (site:): Limit your search to a specific website or domain.



The screenshot shows a Google search interface. The search bar contains the text "machine learning site:wikipedia.org". Below the search bar, there are tabs for "Images", "Videos", "Full course", "Methods", "Types", "Shopping", "Application", "Jobs", and "Projects". The search results show "About 1,41,000 results (0.31 seconds)". The first result is from "wikipedia.org" with the URL "https://en.wikipedia.org/wiki/Machine_learning". The title is "Machine learning" and the snippet describes it as a field of study in artificial intelligence. The second result is also from "wikipedia.org" with the URL "https://simple.wikipedia.org/wiki/Machine_learning". The title is "Machine learning - Simple English Wikipedia, the free ..." and the snippet describes it as a subfield of computer science.

Asterisk (*): Use an asterisk as a wildcard to represent any word or words in a phrase.



Effective Search: The Way Forward

- A scholarly publication is one wherein the published outcome is authored by researchers in a specific field of skill.
- Such work cites all source contents used and is generally peer reviewed for accuracy and validity before publication.
- Essentially, the audience for such works is fellow experts and students in the field. The content is typically more complex and advanced than those found in general magazines.
- A researcher should use all search tools for comprehensive search.
- A researcher must consider what type of information is needed, and where it could be found. Not all information is available online.

Searching is an Iterative process:

- Experiment with different keywords and operators;
- Evaluate and assess results, use filters;
- Modify the search as needed; and
- When relevant articles are found, look at their citations and references
- The researcher needs to engage in critical and thorough reading, making observation of the salient points in those sources, and summarize the findings.
- A detailed comparison and contrast of the findings is also required to be done.
- This entire process may be needed to be done multiple times

Effective Search

- Not many people begin research work in their graduate program with an already acquired skill to efficiently parse math-heavy articles quickly, but those who eventually succeed in an engineering research career quickly develop that skill from reading a lot of papers, seeking help in understanding confusing parts, and getting through relevant coursework to build up the required skills and intuition
- It is very important to not lose sight of the purpose of an extensive search or literature survey, for it is possible to spend a very significant amount of one's time doing so and actually falsely think that one is working hard.
- It is mandatory for a Ph.D. scholar to write a synopsis of the topic and submit it to the doctoral committee for approval. During this stage, the scholar needs to undertake an extensive literature survey connected with the problem

Introduction to Technical Reading

- The literature where knowledge is archived is very fragmented and there are bits and pieces all over the place.
- It is also important to know where to read from; relying on refereed journals and books published by reputed publishers is always better than relying on easily available random articles off the web.
- While reading an engineering research paper, the goal is to understand the technical contributions that the authors are making.
- Amount of time to be spent will get ascertained after an initial skimming through the paper to decide whether it is worth careful reading.
- Read the articles or papers worth reading it else skip or drop reading

Introduction to Technical Reading

- As one works through the literature in this way, one should consider not only the knowledge that is written down but also the reputation of the people who made that knowledge.
- A researcher will always need to be searching for the relevant literature and keeping up to date with it

Conceptualizing Research

- **Conceptualizing research involves formulating the foundational ideas and framework that guide the entire research process. It's about defining the scope, purpose, and structure of your study**
- **Identify the Research Problem:**
- **Review Existing Literature:**
- **Formulate Research Questions or Hypotheses:**
- **Define Objectives and Goals:**
- **Select a Research Design:**

Critical and Creative Reading: Few Questions

- Reading a research paper is a critical process
- The reader should not be under the assumption that reported results or arguments are correct
- Have the authors attempted to solve the right problem?
- Are there simpler solutions that have not been considered?
- What are the limitations (both stated and ignored) of the solution and are there any missing links?

Few Tips For Readers

- Use of judgmental approach and boldness to make judgments is needed while reading.
- It is important to ascertain whether the data presented in the paper is right data to substantiate the argument that was made in the paper and whether the data was gathered and interpreted in a correct manner.
- Critical reading is relatively easy. It is relatively easier to critically read to find the mistakes than to read it so as to find the good ideas in the paper.
- In creative reading, the idea is to actively look for other applications, interesting generalizations, or extended work which the authors might have missed?

Taking Notes While Reading

- The bridge between reading and actually writing a paper is the act of taking notes during and shortly after the process of reading
- There is a well-known saying that the faintest writing is better than the best memory
- In each research paper, there are a lot of things that one might like to highlight for later use such as definitions, explanations, and concepts
- A good note is like a seed . Planted In fertile soil, it will take root and grow
- The shortest pencil is longer than the longest memory
- On completing a thorough reading, a good technical reading should end with a summary of the paper in a few sentences describing the contributions.

Reading Mathematics and Algorithms

- Mathematics is often the foundation of new advances, for evolution and development of engineering research and practice.
- Mathematics is the language with which god has written universe-**Galileo**
- An engineering researcher generally cannot avoid mathematical derivations or proofs as part of research work
- Mathematics is the queen of sciences ,and arithmetic is the queen of mathematics-**Carl Friedrich Gauss**

Importance of Algorithms in Research

- Data Analysis
- Simulation and Modeling
- Optimization
- Machine Learning and AI
- Pattern Recognition
- Image and Signal Processing
- Network Analysis
- Cryptography

“Algorithms are the silent architects shaping future of digital world”

“Behind every seamless user experience there is choreography of algorithms orchestrating the dance of data”

Reading a Datasheet

- **What is a Data Sheet ?:** A Data Sheet is document provides detailed information about particular product or component

Attributions and Citations: Giving Credit Wherever Due

- **What is citation :** Formal acknowledgement of a source from which information, ideas or data have been obtained and used in scholarly work
- **Purpose of Citation:**
 - Giving Credit
 - Avoiding Plagiarism
 - Establishing credibility
 - Facilitating Verification

Different Types of Citation

- APA(American Psychological Association)
- MLA (Modern Language Association)

Citations: Functions and Attributes

- **Citations are the footprints of wisdom guiding seekers to the sources of enlightenment**
- Any portion of someone else's work or ideas in papers, patents, or presentations must be used in any new document only by clearly citing the source
- As per relevance to context, the researcher provides due credit through the use of a citation. Citations help the readers to verify the quality and importance of the new work and justification of the findings. Preferably, citations should be given at the end of a sentence or the end of a paragraph as can be seen even in this particular paragraph (Example ; Smith 2019)

How to Cite?

- A researcher needs to cite each source twice:
- (i) **in-text citation**, in the text of the article exactly where the source is quoted or paraphrased.
- (ii) **a second time in the references**, typically at the end of the chapter or a book or at the end of a research article
- It is also important to mention the date the source was published and sometimes also the particular date it was accessed by the researcher if it is related to web content.

Example

APA Style

Climate change is a global issue that requires urgent attention" (Smith, 2018, p. 45).

References

1. Raj, U. & Khare, S. Indian education system in fight against COVID-19 pandemic. *The Impact Of COVID19 On The International Education System*. Published: November 19th. (2020)
2. Aithal, P. & Aithal, S. Implementation strategies of higher education part of national education policy 2020 of India towards achieving its objectives. *International Journal Of Management, Technology, And Social Sciences (IJMTS)*. **5**, 283-325 (2020)
3. Jindal, A. & Chahal, B. Challenges and opportunities for online education in India. *Pramana Research Journal*. **8**, 99-106 (2018)
4. Muthuprasad, T., Aiswarya, S., Aditya, K. & Jha, G. Students' perception and preference for online education in India during COVID-19 pandemic. *Social Sciences & Humanities Open*. **3**, 100101 (2021)
5. IAMAI & KANTAR Internet in India 2022. (2022), <https://www.iamai.in/sites/default/files/research/Internet>

LaTeX Editor: Article Editor

- LaTeX, a document preparation system often used by engineering researchers to automatically format documents that comply with standard formatting needs, is very effective to track and update citations.

There are three main functions of Citation:

- **Verification function:** Authors have a scope for finding intentional or unintentional distortion of research or misleading statements. Citation offers the readers a chance to ascertain if the original source is justified or not, and if that assertion is properly described in the present work
- **Acknowledgment function:** Researchers primarily receive credit for their work through citations. Citations play crucial role in promotion of individual researchers and their continued employment.. Citations help all researchers to enhance their reputation and provide detailed background of the research work
- **Documentation function:** Citations are also used to document scientific concepts and historical progress of any particular technology over the years

- Citations are the currency that authors would wish to accumulate and the technical community gives them credit for these contributions.
- Authors demonstrate their comprehension skills by identifying, estimating, and incorporating other's research work and then create and express their own ideas precisely while acknowledging ownership of ideas through citation

Few Cases Do not fulfill the actual goal of citations

- **Spurious citations**-spurious citations refer to the inclusion of misleading or inaccurate references in scholarly works, research papers, or academic publications. These citations may appear legitimate at first glance, but upon closer inspection, they lack proper substantiation or misrepresent the content of the cited sources.
- **Researchers and academics use citations**- to support their arguments, provide evidence, and give credit to previous work. However, spurious citations can undermine the credibility of a study by creating a false impression of robust supporting evidence.
- **To maintain the integrity of academic research**- it's crucial for scholars to thoroughly review and validate their sources, ensuring that the cited references accurately reflect the content they claim to support

Biased Citations

- **Biased Citations** : When authors cite the work of their friends or colleagues despite there being no significant connection between the two works, or when they do not cite work of genuine significance because they do not wish to give credit in the form of citation to certain individuals, then such actions can be classified as biased citations. Neglect of citations to prior work whose conclusions or data contradict the current work is also biased

Self-citations:

- **Self-citations:** There is nothing wrong in citing one's prior work if the citation is really relevant. Self-citation of prior papers is natural because the latest paper is often a part of a larger research project which is ongoing. Sometimes, it is also advantageous for the reader because citations of all the related works of the same author are given in one paper and this may reduce the effort of the reader in trying to find the full versions of those papers
- **Coercive citations:** Coercive citations happen when researchers feel pressured to include references to specific works or authors in their papers, not because these sources genuinely contribute to their research, but due to external pressures or influences. This could be to please colleagues, editors, or others in the academic community. Coercive citations can compromise the integrity of a study by including references that may not be directly relevant or essential to the research, distorting the true merit of the work.

In Summary

- From the above discussions, it is clear that the author(s) must maintain a balance between too few and too many citations. At the same time, author(s) must give credit whenever due even if it is their own work.

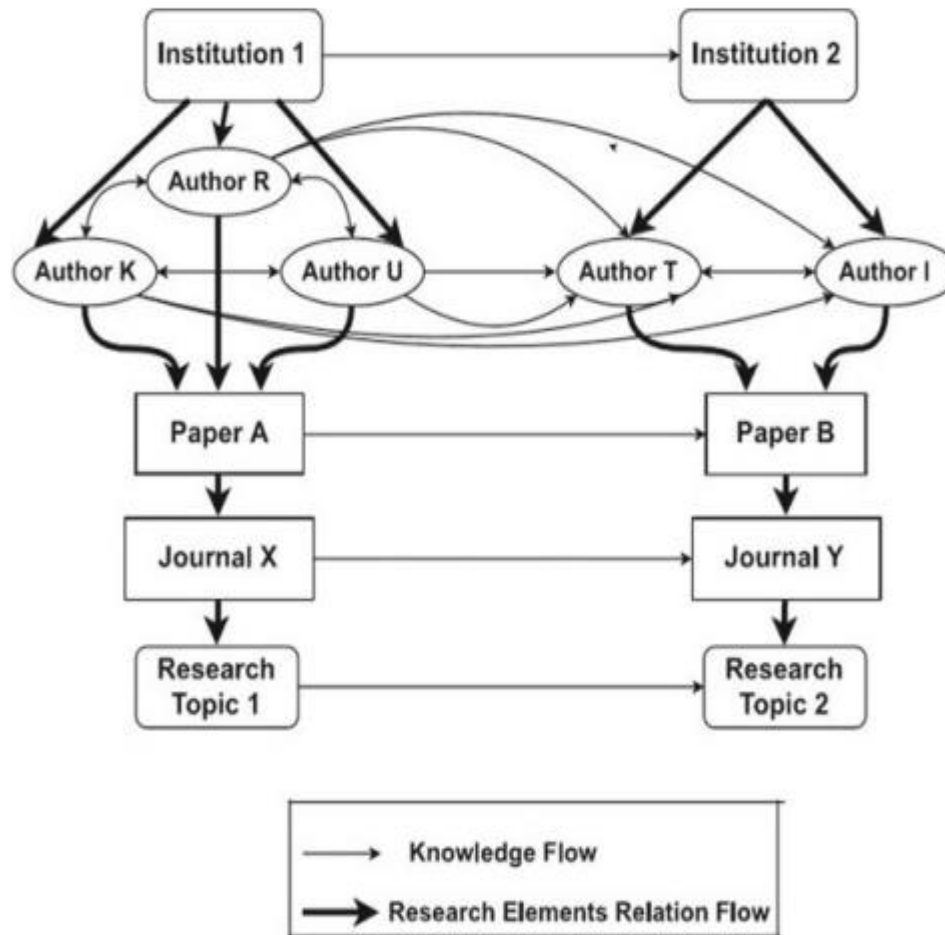
Impact of Title and Keywords on Citations

- In the language of research, keywords are the keys that unlock the the doors to understanding
- **The title and keywords** of a research paper significantly impact its citations. A clear, compelling title attracts attention and increases discoverability. Well-chosen keywords enhance search-ability, making the paper more accessible to researchers. An effective title and relevant keywords can improve the visibility of the study, leading to increased citations as more scholars find and reference the work.
- **Keywords represent** essential information as well as main content of the article, which are relevant to the area of research. Search engines, journal, digital libraries, and indexing services use keywords for categorization of the research topic and to direct the work to the relevant audience If maximum number of allowable keywords are used, then the chance of the article being found increases and so does the probability of citation count of the article.
- **Behind every great research paper is a title that whispers promises of enlightenment and discovery**

Knowledge Flow Through Citation

- **Knowledge flow through citation** is a process in which information and ideas move across scholarly works. When a researcher cites a source in their paper, they are acknowledging and using the knowledge from that source. This creates a network of interconnected ideas and builds on the existing body of knowledge. The cited work becomes a reference point for others, fostering the dissemination and transfer of knowledge within the academic community. Citation practices contribute to the growth, validation, and evolution of ideas in various fields.
- **In engineering research**, knowledge flow is primarily in the form of books, thesis, articles, patents, and reports. Citing a source is important for transmission of knowledge from previous work to an innovation [16]. Production of knowledge can be related to the citation network.

Citation-based knowledge flow



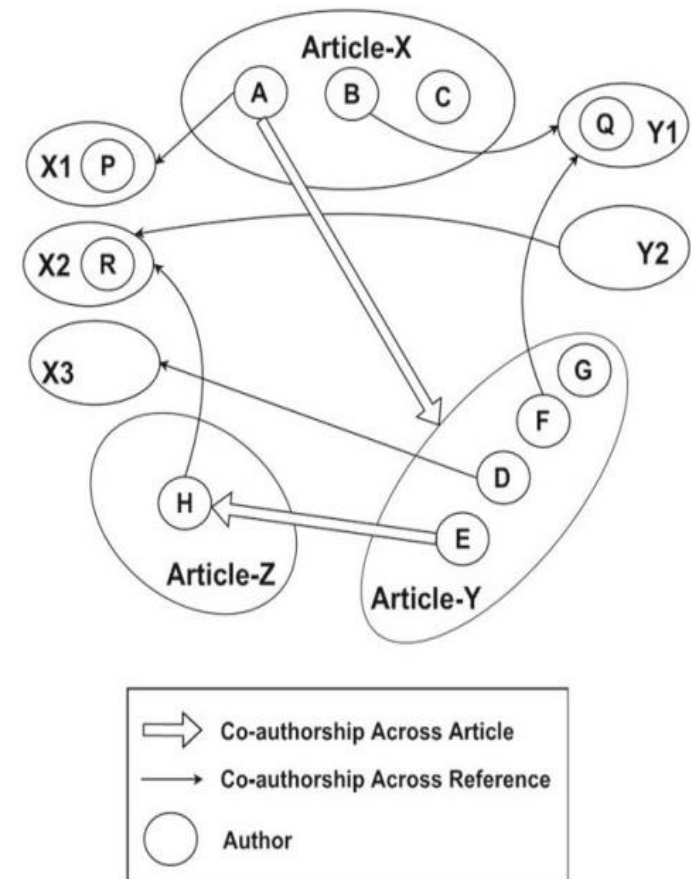
Co-authorship network

“Authors illuminate the path of discovery, and co-authors are the guiding lights that brightens the academic landscape”

Co-authorship refers to the collaboration between two or more individuals in the creation and development of a single scholarly work, such as a research paper or article. Co-authors contribute intellectually and materially to the project, sharing responsibilities for the design, execution, analysis, and writing of the work. Each co-author is typically credited for their substantial contributions, and their names appear on the publication. Co-authorship is common in academia and research, promoting collaboration and the pooling of expertise to produce more comprehensive and impactful contributions to the academic community. Clear communication and agreement on authorship contributions are crucial to maintain ethical practices in co-authorship.

Co-authorship network

- Three articles (X, Y, and Z) and five references (X1, X2, X3, Y1, and Y2) of article X and Y, respectively, are considered. A, B, and C are authors of article X, and D, E, F, G, and also A are authors of article Y. Article Z has two authors H and E. References X1, X2, X3, Y1, and Y2 have authors (A, P), (H, R), (D), (Q, B, F), and (R), respectively.
- Based on co-authorship citation network, references X1 and Y1 are considered self-citation, reference X3 is a level-1 co-author citation because author of article Y is direct collaborator of author A, reference X2 is a level-1 co-author network because author A is collaborator of E who collaborated with H



Citing Datasets

- **Citing datasets** involves giving proper credit to the sources of data used in a research study or project. In scholarly works, researchers should provide citations for datasets just as they would for other types of references. This includes mentioning the dataset's authors, title, publication date (if available), publisher or repository, and a unique identifier if applicable. Properly citing datasets is essential for transparency, reproducibility, and acknowledging the efforts of those who collected or curated the data. It allows other researchers to locate and use the same dataset, ensuring the integrity and traceability of data sources in academic and scientific research.

Styles for Citations

- Citation styles differ primarily in the order, and syntax of information about references, depending on difference in priorities attributed to concision, readability, dates, authors, and publications. Some of the most common styles for citation (as well as other aspects of technical writing) used by engineers are as follows

Template for books:

Author Surname, Author Initial. (Year Published). Title. Publisher, City, Pages Used.

Example:

Wearstler, K., and Bogart, J. (2004). Modern glamour. Regan Books, NY.

Template for websites:

Author Credentials / Company Name (Year Published). 'Title'. [http://Website URL](http://WebsiteURL) (Oct. 10, 2013).

Example:

Blade cleaning services (2015): <http://www.bladecleaning.com/problematica> (29 Oct, 2016).

Template for journal publications:

Author Surname, Author Initial. (Year Published). 'Title'. Publication Title, Volume number(Issue number), Pages Used.

Example:

Johnston, L. (2014). "How an Inconvenient Truth Expanded The Climate Change Dialogue abd Reignited An Ethical Purpose in The United States". 1-160.

Text Citation

In-text citation for journals or books: The following part is to be placed right after the reference to the source of the citation assignment:

Template

(Author Surname/Website URL Year Published)

Examples:

- i. Citation is a very important part of technical writing. (Deb 2016)
- ii. Engineers create devices to monitor mountains so that nearby inhabitants can be warned of impending eruptions. (Teachengineering.org 2014)

APA Style

Climate change is a global issue that requires urgent attention" (Smith, 2018, p. 45).

MLA Style

Climate change is a pressing global concern (Smith 23).

Acknowledgments and Attributions

- Acknowledgments and attributions are concepts commonly used in various contexts, such as academic writing, creative works, and collaborative projects. Here's an explanation of each
- **Definition:** Acknowledgments refer to a section in a document or work where the author expresses gratitude or recognition to individuals, organizations, or entities that have contributed to the development, completion, or support of the work.
- **Purpose:** The purpose of acknowledgments is to give credit to those who have provided assistance, guidance, resources, or inspiration, but may not be considered as authors or contributors in the traditional sense.
- **Content:** Acknowledgments can include thanks to advisors, mentors, funding agencies, colleagues, friends, family, or anyone else who played a role in the creation or completion of the work.

Attributions:

- **Definition:** Attributions involve giving credit to the original source or creator of a particular idea, concept, data, image, or any other element that is incorporated into a work.
- **Purpose:** Attributions are essential to maintain intellectual honesty and integrity by ensuring that proper credit is given to those who originated or own the intellectual property being used. This applies to various forms of content, such as text, images, code, and more.
- **Examples:** In academic writing, attributions are made through citations to acknowledge the source of information or ideas. In creative works, attributions may involve crediting the creator of an image or a piece of music that is included in a project.

- Every author should know that what should/should not be acknowledged. Author should acknowledge quotation, ideas, facts, paraphrasing, funding organization, oral discussion or support, laboratory, and computer work.
- **Quotation:** In technical writing such as in the field of engineering, quotes are used very rarely. Quotations are of two types:
- **Direct quotations** are used when author use actual words or sentences in the same order as the original one. Author should use quotation marks for the words or sentences with proper acknowledgment.
- **Indirect quotation** summarizes or paraphrases the actual quote. In such cases, it is important to acknowledge with proper name and date
- **Authors should acknowledge** people who give appropriate contribution in their research work. Non-research work contributions are not generally acknowledged in a scientific paper but it may be in a thesis. Persons must be acknowledged by authors, who gave a scientific or technical guidance.

Whom to Acknowledge

- **Funding Agencies:** Organizations or agencies that provided financial support for the research or project.
- **Advisors and Mentors:** Individuals who provided guidance, advice, and mentorship throughout the project or research.
- **Colleagues and Collaborators:** Individuals who actively collaborated on the work, shared ideas, or provided constructive feedback.
- **Family and Friends:** Personal acknowledgments expressing gratitude to family and friends for their support during the process.

ACKNOWLEDGEMENT

My sincere gratitude goes to all who made this project a reality. [Supervisor's Name], your guidance was invaluable. I appreciate the dedication of my teammates and colleagues, whose collaborative efforts brought our project to fruition. Our institution's support was crucial in ensuring a smooth execution.

Lastly, my family, friends, and loved ones provided unwavering support and motivation. Their belief in my abilities kept me focused on our project's objectives. Together, your collective contributions have been the driving force behind this project's success, and for that, I'm profoundly thankful.

Acknowledgments in Books/Dissertations

- Acknowledgments provide an opportunity for authors to express gratitude and acknowledge the contributions of individuals or institutions who have played a significant role in the completion of the work. This fosters a sense of appreciation and recognition
- A page of acknowledgments is usually included at the beginning of a thesis/ dissertation immediately following the table of contents. These acknowledgments are longer than the one or two sentence statements in journal papers or articles in conference proceedings. These detailed acknowledgments enable the researcher to thank all those who have contributed in completion of the research work

A Sample Acknowledgement

I would like to express my deepest gratitude to my advisor Prof. XYZ for their invaluable guidance and unwavering support throughout the research process. Special thanks to my family and friends for their encouragement and understanding during this academic journey. I am also thankful to my organization “ABC” for providing the resources and environment necessary for the completion of this thesis. The support received from [Funding Agency or Organization] is sincerely appreciated. Lastly, I extend my heartfelt thanks to all those who indirectly.

Dedication or Acknowledgments?

- A dedication is a brief statement at the beginning of a work, expressing the author's intention to honor or dedicate the work to a specific person or group.
- **Purpose:** It serves to emotionally connect the work to a person or cause, often symbolizing the personal significance of the project.
- **Content:** A dedication typically includes a short message expressing love, appreciation, or recognition for the dedicated person or group.
- **Placement:** Found at the beginning of the work, before the main content, and is often separate from the acknowledgments.
- **Example:** “ Dedicated To my parents, whose unwavering support and love have been my greatest inspiration.”

Sample Dedications

- **Simple and Heartfelt:** To my parents, whose unwavering love and sacrifices have been the bedrock of my journey through academia. Your belief in me has been my guiding light.
- **Acknowledging Family Support:** To my family, for standing by me with patience, understanding, and unwavering encouragement. This achievement is as much yours as it is mine.
- **Gratitude to a Spouse:** Dedicated to my loving spouse [ABC], whose unwavering support, understanding, and sacrifices made this academic journey not only possible but meaningful.
- **Recognizing Friends and Colleagues:** To my friends and colleagues who became companions on this intellectual adventure. Your camaraderie, shared challenges, and shared victories have added immeasurable value to this academic pursuit.

