

# AI Tools in Research and Academics

<sup>1</sup>Pragati Bhatnagar,<sup>2</sup>Manish Bhatnagar

<sup>1</sup>Assistant Professor,<sup>2</sup>Assistant Professor

<sup>1</sup>Acharya Kalu Kanya Mahavidyalaya,

<sup>1</sup> Jain Vishva Bharti Institute Deemed University, LADNU, India

1Pragatibhat@gmail.com, 2bhatnagarmanish@gmail.com

**Abstract—** Present era is the era of Artificial Intelligence. With the advent of ChatGPT every layman is talking about AI. Now AI is being used in every facet of our life. We all are familiar with chat bots and their use. Chat bots are commonly used in all sectors like customer services, marketing, health care and education. This paper emphasises the use of AI tools in academics and research. There are many tasks which can be facilitated by use of AI tools in academics and research. Primary motive of researcher and academician is to focus on research and connecting with students but most of the precious time is spent on other tasks like data collection, paper publishing, creating ppts, preparing report, preparation of teaching notes etc. The time spent on these secondary tasks can be minimised by use of these AI tools. The AI tools can be used by researcher and teachers as assistants keeping in mind the limitations of these tools. The data generated by AI tools may sometimes be wrong and must be verified by human before using it. The proper use of AI tools in efficient manner will certainly benefit academicians and researchers and will help them to focus on their main work.

**Keywords-** Artificial Intelligence , AI Tools

## I Introduction to Artificial Intelligence—

Artificial intelligence (AI), in its broadest sense, is intelligence exhibited by machines, particularly computer systems. It is a field of research in computer science that develops and studies methods and software that enable machines to perceive their environment and use learning and intelligence to take actions that maximize their chances of achieving defined goals. (Wikipedia). AI is the technology which helps machine to perform tasks which require human like intelligence. Although the term AI was coined in year 1965 and we have crossed about six decades but every layman was not familiar with the term. It can be said that the super computer Deep Blue developed by IBM which was used to defeat Russian grand master of chess Gari Kasprov popularised the term for general public. Then ChatGPT and recently the new AI tool

## II Various AI tools used in Education and Research

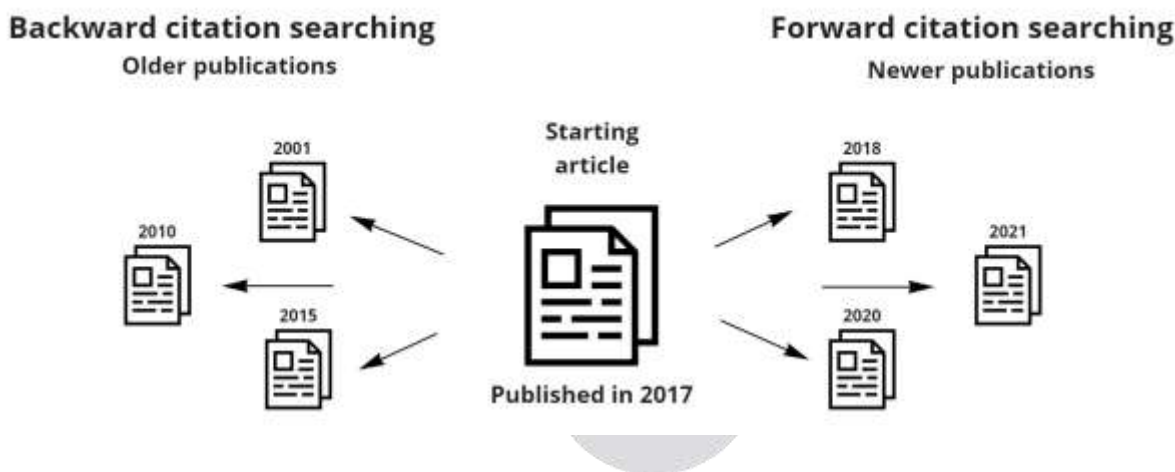
**ChatGPT-** This tool revolutionised the world of Artificial Intelligence. ChatGPT is the product of a company named OpenAI which came into existence in Nov 2022. ChatGPT is a large Language model which uses artificial intelligence algorithm using deep learning techniques. Deep learning techniques cannot create content on its own. They learn from the large amount of data and information which is already available. They process the large amount of information already available and give us the information in the form we need and can be understood easily. We can use chatGPT to assist us in our academic and research work as a tool for creating framework of our paper, to answer some basic questions before starting a research, to rephrase certain section of paper, to prepare some content for our teaching etc. The output generated by ChatGPT should be checked for accuracy as the output generated does not provide proper references and citations. Output may sometime give wrong results and may contain biases as information is generated from already available content which is prepared by human beings which may inherently have some biases. ChatGPT is a general purpose tool.

**Tools for Literature Review-**



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The process of literature review consist of finding a set of literature which is related to our research work, then reading the literature and then compiling them in the easier form from our point of view. After literature review we have a list of 100 papers which are related to our research work. These 100 papers are not separate entities and they may be related to many other paper. When you read these papers you find that a paper may again be related to many other papers, it may contain many references and many papers may have used this paper as a reference. So there is interconnected web of papers. This interlinking of paper is very useful in finding out all the papers related to your research ensuring that you have not missed any related paper. Citation mapping is using a single



Source- <https://guides.library.unisa.edu.au/GreyLiterature/CitationSearching>

paper to find all the related papers which are cited in that paper and all papers which cited that paper. This work of citation mapping can easily be done by tools like Litmap. Other popular AI tools for literature mapping are Semantic Scholar, Elicit, Research Rabbit etc.

### **Litmaps-**

Litmaps is literature map. As clear from its name we can easily map all the research papers related to a single research paper. Litmap provides you an interface where you can read abstract of related papers. You can also navigate to full text if it is an open access paper. Interface helps you to hover through the references and quickly change the seen paper. Using this tool you can easily create dynamically changing map for your literature.

### **Grasping , Summarising & Filtering Research Papers-**

After the literature review we collect many papers related to our research. If we have collected thousands of papers it is very time consuming to read those papers. Reading a single paper from beginning to end that is from title to references may consume half day of a researcher and especially for young researchers it may become very tedious. Many of the papers may not be relevant to our research and some may be more related to our work. For quickly reading out or understanding the main gist of paper , so that we may filter out the papers relevant to us, there are many AI tools like AI Summarizer, SciSummary, Quillbot, Paper Digest , Word tune etc. These tools can be used to write literature review for research work

### **Paper Digest-**

This tool as from the name it is clear digests the paper means reads the paper and bring out the gist of paper which we can read in three minutes, so this tool can be used to understand the main content of paper and filtering out the papers relevant to us.

### **Creating Manuscripts, Grammar & Plagiarism Checking**

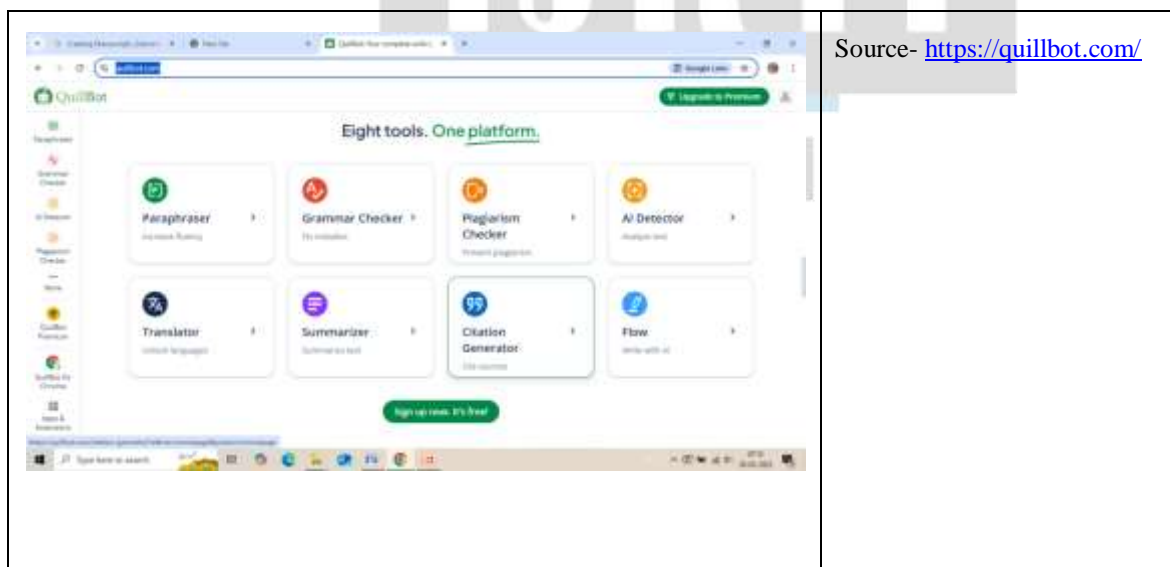
After filtering out the papers we have to write the literature review. We also have to write many research articles. Thesis writing work is also to be done. Many persons from specially from non- English speaking states faces a lot of problem in writing. They may not find appropriate words, may face problem in writing good and grammatically correct language. The content may have plagiarism issues. Many tools are available related to these works such as like Word tune, Paperpal, Easybib, Grammarly, Quillbot. Some tools are meant specifically for script writing, some for grammar and plagiarism checking and some are versatile tools performing many functions.

### **Word tune-**

It is a tool which takes smaller input from us and gives us different options to present our content in desired manner. As we have to present our research work in different formats like presenting in conference, publishing a research paper, including it as a part of our Ph.D thesis this tool can help us to rewrite our content in different ways we want.

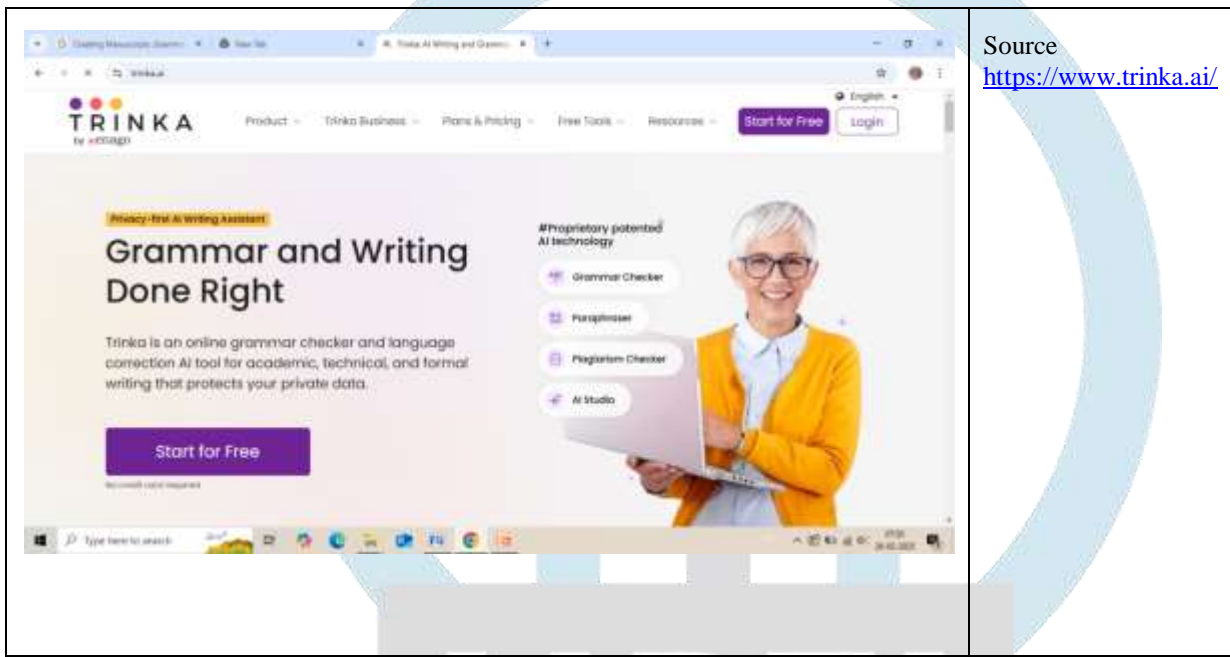
### **Quillbot-**

It is a versatile tool which in a true sense is a assistant for our entire research journey. It helps in paraphrasing, grammar checking, plagiarism checking, summarising, translator, citation generation etc.



**Trinka-**

It is also a versatile AI tool which can be used for different purposes. Online grammar checker and language correction, AI tool for academic, technical, and formal writing that protects our private data. Many of the features of trinka are free but for advanced features paid version can be used Grammarly- This tools also performs many tasks. It checks our content for grammar & suggests language correction. It helps to makes our writing more effective and efficient and also checks our script for plagiarism.



Source <https://www.trinka.ai/>

**Turnitin—**

It is an AI tool which checks for originality, plagiarism prevention and checks for writing citations. It is a trusted tools used for educators and researchers worldwide.



Source <https://www.turnitin.com/>

### Reference Management Tools-

These tools are very helpful in including citations, referencing and generating bibliography automatically. It also helps in editing citations, changing reference list and formats. Popular reference management tools are RefWorks, Zotero and Mendeley etc. These tools help us to automate the task of citation and referencing while writing our research paper.



### Thrix-

Thrix is a powerful AI tool for editors, researchers and students that corrects and standardizes references, bibliographies, and in-text citations to match our style requirements. It is a browser based application that helps us to change our reference style from one format to another. Creating Graphics-Sometimes we have to present graphical abstract that is represent the core idea of our mind in form of pictures. Some journals ask for cover image when we submit our paper. There are some graphical tools like mid journey, Design AI, Auto Draw, which helps to convert the idea of our mind in form of graphics.

### Midjourney-

Midjourney is an AI tool which is used to create images based on text. You can give various parameters in prompts to improve the quality of your image.

### III.Conclusion-

In present era AI tools are used in every facet of our life including research and academia . AI tools can be utilised to facilitate researcher or academician to utilise their time in their actual work. The time spent by them in literature survey, creating presentations, writing good scripts , referencing or citations ,research writing, checking grammar, generating graphics for abstract ideas can very well be addresses by using AI tools. Tools like ChatGPT and many others can be used for different purposes but the result generated must be properly checked by human as these tools collect data from internet which may be incorrect and may have biases.AI tools should be used as a friend or assistant by researchers and academicians to utilise their time in efficient manner for research and academics.

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