Technical Paper Writing

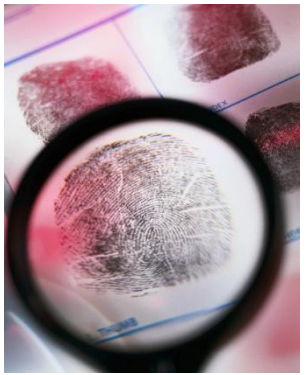
Research Forum Talk
15th February 2024

Research Forum, Department of Computer Engineering, VESIT

Need to write a Research / Technical Paper

Ideally it is

- To communicate and share the new discoveries in Engineering or technology to improve the quality of life and for providing better human care.
- Make contributions to society



More often is

- to be advance in the field
- to get the research funding/grants
- to get the tenure
- to improve the scientific impact of institute / individual
- recognition by peers

Is it a Skill to write Technical Papers?

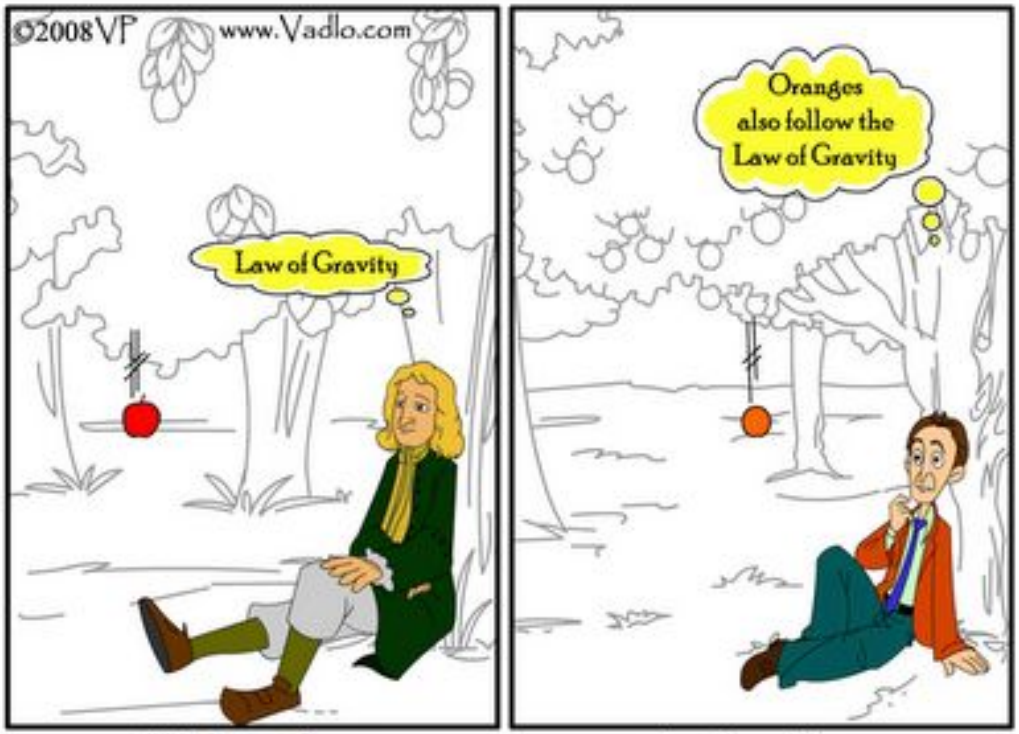
- Many papers are badly written
- Good writing is a skill you can learn
- You will get more brownie points (more papers accepted, Cited in google scholar, Scopus indexed, etc.)
- Your ideas will have more impact
- You will have better ideas

Increasing importance

Global View of Publication in Science & Engg.

- Approximately 35,000 journals published regularly
- 22,000 of them are SCI, Web of Science, UGC or Scopus abstracted
- Total number of papers published annually exceeds 2.5 million
- Over 50% are never cited by any one – **Why?**

Publishing in High Impact Journals-It's the idea which matters



High Impact Paper *Low Impact Paper*

From Good Research to Good Writing..

- Quality is state of mind
- Good science lead to great findings, and
- Great findings need to be reported in the best possible way to the world

A Good Paper Starts with Good Plan

A Good Paper Starts with Good Plan

- Relate the Paper with the scope of the meeting or Journal
- Explain some sort of methodology
- Present useful, technically sound information
- Support your conclusions with solid evidence

Step 1 : Read a Technical Paper

Why Read Papers?

- So you know what's happening
- Avoid reinventing the wheel
- does happen commonly,
- too many wheels already exists
- Find interesting research topics

Why not to Read Papers?

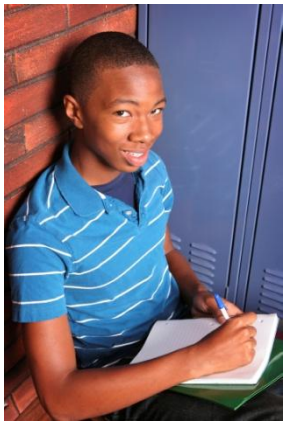
- Cannot read everything
- Should not read everything
- Can suppress innovation
- once you see solutions using a particular theme, often hard to think differently

Read or not to Read – Confusion!!

- Read, of course !!
- Know what's important
- Know what can be ignored without significant loss of information

Read a Technical Paper

- Read once-Read write!
- Take notes as you read: Develop a system of underlining, marking, and/or paraphrasing in the margins that is meaningful to *you*.

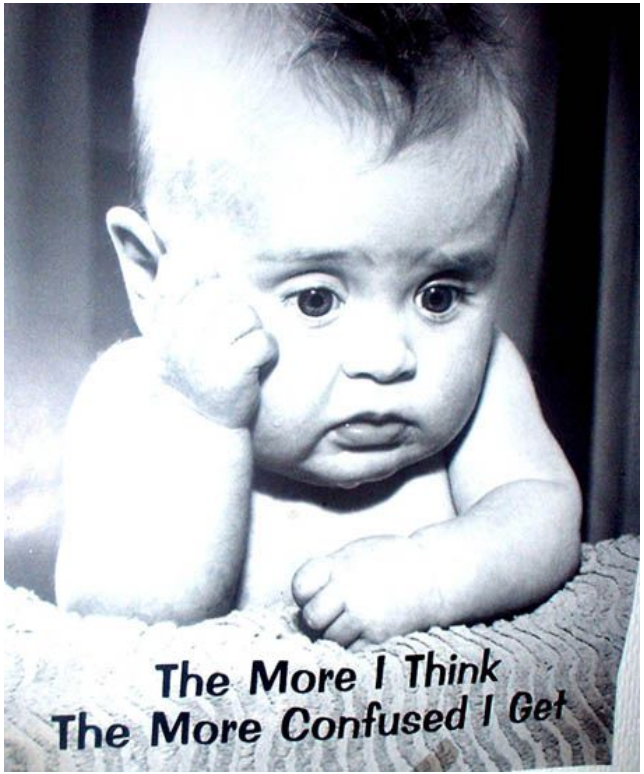


What to Read ?

- Major conferences / Reputed Journals of recent years or a few years behind, but still can be useful
- Tech reports from active research groups
- Survey / overview papers
- White Papers
- more technical - IEEE Personal Communications, ...
- newsletters - ACM SIGCOMM, ACM SIGMOBILE, ...

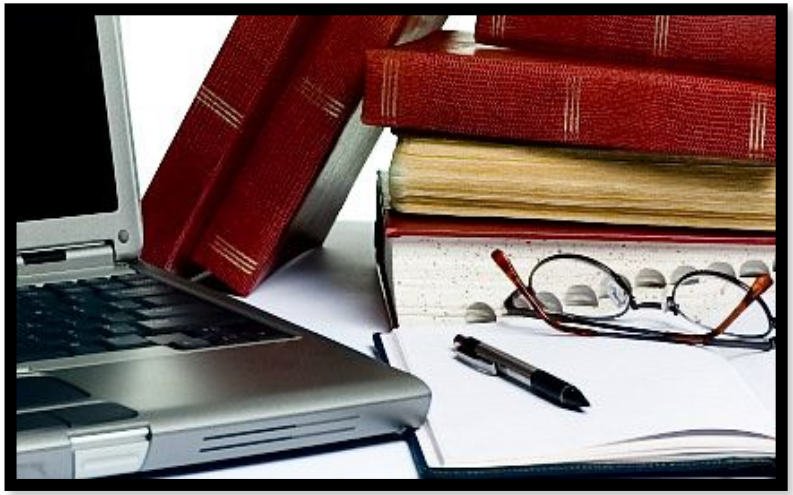
Step 2 : Write a Technical Paper

Where do we Begin?



Types of Technical Writings

- Review Articles
- Research Reports
- Research Projects for Funding
- Patents
- Dissertation of Thesis



Types of Technical Writings: Research Articles

- Ultimate Product of Intellectual Pursuit
- Report on research findings that are
- Sound (Valid)
- Previously unknown (Novel and original)
- Add new understanding, observation, proofs
- It has required structure and style IMRaD (Introduction, Material, Results and Discussion).

Attributes of a Good Manuscript

- Concise but powerful
- Story like
- To the point
- Free from grammatical and stylistic errors
- Recognizing contributions of others
- Technically correct

Remember : Four Questions of writing Manuscript

- What is the? INTRODUCTION
- What did you do? METHODS
- What did you find? RESULTS
- What does that means? DISCUSSION

The Writing Process..

1. Outline
2. Draft
3. Revise
4. Edit

Creating an Outline

- **Research**: Perform initial research to learn about your chosen topic.
- **Brainstorm**: List all the ideas that you want to include in your paper.
- **Organize**: Group related ideas together.
- **Order**: Arrange material in subsections from general to specific or from abstract to concrete.
- **Label**: Create main and sub headings.

Choosing Your Topic..

- **Breadth.** You may need to start broad and let your research take you narrower.
- **Originality.** Choose a topic that will allow you to contribute to the field, rather than just regurgitate facts.
- **Sources.** On the other hand, also choose a topic that has scholarly grounding.

Narrowing Your Topic..

- Focus on a **specific TYPE or CLASS**
- Focus on a **particular PLACE or REGION**
- Focus on a **certain TIME PERIOD**
- Focus on a **certain ASPECT**
  - Social, legal, medical, ethical, biological, psychological, economic, political, philosophical, etc.
- Focus on a **specific POPULATION**
  - Gender, age, occupation, ethnicity, nationality, educational attainment, species, etc.
- Focus on a **RELATIONSHIP with two or more topics**
- **COMBINE different kinds of focuses**

Narrowing Your Topic – Brainstorming Strategies

- List
- Map
- Free-write

- Tour the library.
- Locate sources.

Outline - Tips

- **Begin early!** A strong, detailed outline is a crucial step of the writing process.
- **Refer to your outline often.** A strong outline provides a consistent backbone during the writing process.
- **Be as specific as possible.** This will be your guide throughout the entire writing process.

Outline - Tips

- **Avoid having too many subheadings.** This may indicate that you can further narrow the topic of your paper.
- **Don't be afraid to change your outline.** Further research may provide additional information or counterpoints.
- **Allow yourself enough time to make changes.** Attempting a complete overhaul of your paper the night before it's due is both frustrating and often futile.

What's in a Research Paper ? – Basic Manuscript Outline

- Abstract
- Introduction
- Motivation
- Literature Survey / Review
- Proposed Idea & Methodologies
- Implementation Steps
- Result Analysis & Discussion
- Conclusions
- Future Work

Abstract

- State paper objectives and scope
- Describe methods used
- Summarize results
- State principal conclusions

Abstract : Most Critical Part of a article / Manuscript

- Should be **informative, indicative and reflects** the main ‘story’ of the article.
- The only chance you have to **get the reader’s attention**.
- Should be crisp, concise and accurate.
- Gives the quick idea of the contents (Stand alone).
- What and how was done
- Provide a brief conclusions
- I generally write abstract at the end
- ***The detailed information must be present in the body text, not in abstract***.

Introduction

- Describe the author's contribution
- Clearly describe the nature and scope of the problem investigated.
- Review pertinent literature
- State your method of investigation and your justification

The Introduction (1 Page)

- **Describe the problem**
  - What is the broader context?
  - What is the particular problem?
  - - Why is it interesting?

Two paragraphs

- **State your contributions**
  - What is new? (novelty)
  - Why is it useful? (features of your solution)
  - How do you know? (evaluation)
- Assume reader is general attendee of target conference

Materials and Methods

- Experimental / Case Study Papers
- Purpose of experiments / case study
- Describe apparatus / experimental procedures
- Present data and observations
- Inferences

Materials and Methods

- **Write the methods section first** because it is the easiest to write.
- Provide enough details for competent researchers to repeat the experiment (**Who, What, When, Where, How, and Why?**)
- Start writing when experiments still in progress
- Sufficient information must be provided for reproducibility
- Study design-new methods must be described in detail
- Algorithms / Techniques / Design Strategy
- Statistical analysis and data collection
- Descriptive subheadings

Results

- Use descriptive headings that concisely state the results.
- Data representation-concise and accurate.
- Short and easy to understand
- Consistent with the abstract and introduction
- Give tables and figures where needed
- With sufficient information so that minimum text is required.
- Don’t repeat information in graphics and text.

Results

- Appropriate numbering of figures and table mentioned in the text.
- Use significant figures where required.
- Avoid speculations and over discussion.
- Avoid using words such as **proves, confirmed, removed all doubts**, etc. Remember science is dynamic and ever changing.

Discussion

- **Hardest section to write, but it is also the most important.**
- Use descriptive headings that concisely summarize the interpretation of the results.
- Answer the question posed in introduction
- Correlation of your finding with the existing knowledge
- Discrepancies between new results and previously reported results.

Conclusion

- Identify key findings and application
- Should not be a summary of the work done - abstract is doing fine with that.
- Consistent with experimental and introduction

References (IEEE / Springer Formats)

Abstract:

- Beharry, S.; Bragg, P.D. Properties of Bound Inorganic Phosphate on Bovine Mitochondrial F1F0-ATP Synthase. *J. Bioenerg. Biomembr.* ***2021, 33, 35-42***

Book:

- Beall, H.; Trimbur, J. *A Short Guide to Writing about Chemistry, 2nd ed.; Longman: New York, 2021; pp 17-32*

References (IEEE / Springer Formats)

Journals:

- Labaree, D.C.; Reynolds, T.Y.; Hochberg, R.B. Estradiol-16a-carboxylic Acid Esters as Locally Active Estrogens. *J. Med. Chem.* ***2001, 44, 1802-1814.***

Encyclopedias:

- Diagnostic Reagents. *Ullmann's Encyclopedia of Industrial Chemistry, 5th ed; VCH: Weinheim, Germany, 1985*, p. 196

Starting Your Paper

Begin with the conclusions

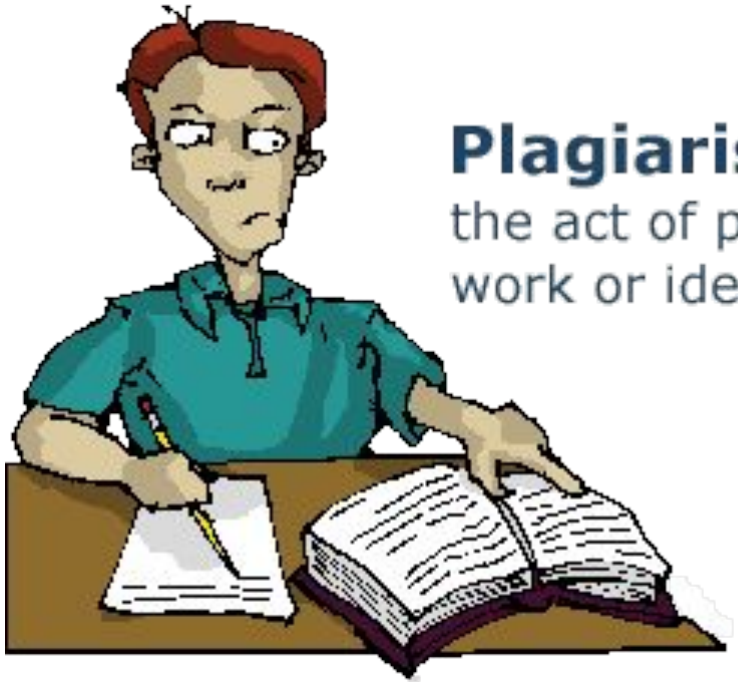
- Describe how you got the results
- Describe the process and methodology
- Present the theory that explains the process
- Write simple Sentences
- Use Common Terminology

Ethics

- Plagiarism
- Duplicate manuscripts
- Unnecessary self citation
- Redundant publication
- Author conflicts of interest

"Welcome to the co-author's party!
You're number twenty-one!"

Plagiarism



Plagiarism:
the act of presenting another's work or ideas as your own.

Plagiarism Vs. Paraphrase

Direct quote from research:

- "Japan's beautiful Mount Fuji last erupted in 1707 and is now classified as dormant. Dormant volcanoes show no signs of activity, but they may erupt in the future."

Non-plagiarized paraphrase:

- Mount Fuji, the highest mountain in Japan, is actually a dormant volcano. Dormant means that it is not active. The last time Mount Fuji erupted was in 1707, and there is always the possibility of a future eruption.

Plagiarism Tools

Paid / Licensed Plagiarism Tools

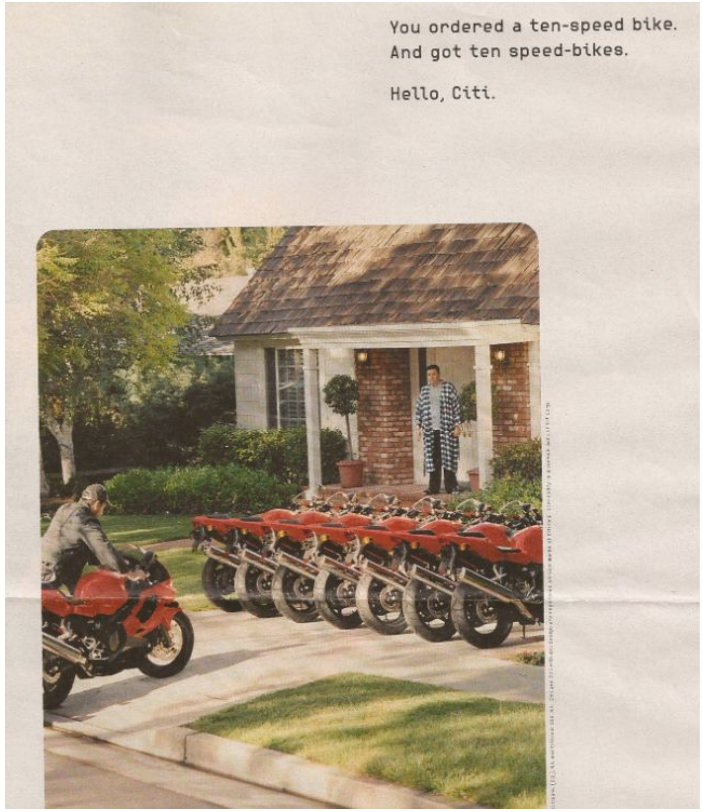
- Turnitin
- iThenticate
- URKUND

Open Source Plagiarism Tools - Link

Rules of Thumb about Grammatical Issues

- leaving out a *single* comma can change the meaning

- If you didn't hyphenate it, it would be ambiguous



Use the active voice

The passive voice is "respectable" but it DEADENS your paper. Avoid it at all costs.

NO	YES
It can be seen that...	We can see that...
34 tests were run	We ran 34 tests
These properties were thought desirable	We wanted to retain these properties
It might be thought that this would be a type error	You might think this would be a type error

"We" = you and the reader

"We" = the authors

"You" = the reader

Use Simple & Direct Language

NO	YES
The object under study was displaced horizontally	The ball moved sideways
On an annual basis	Yearly
Endeavour to ascertain	Find out
It could be considered that the speed of storage reclamation left something to be desired	The garbage collector was really slow

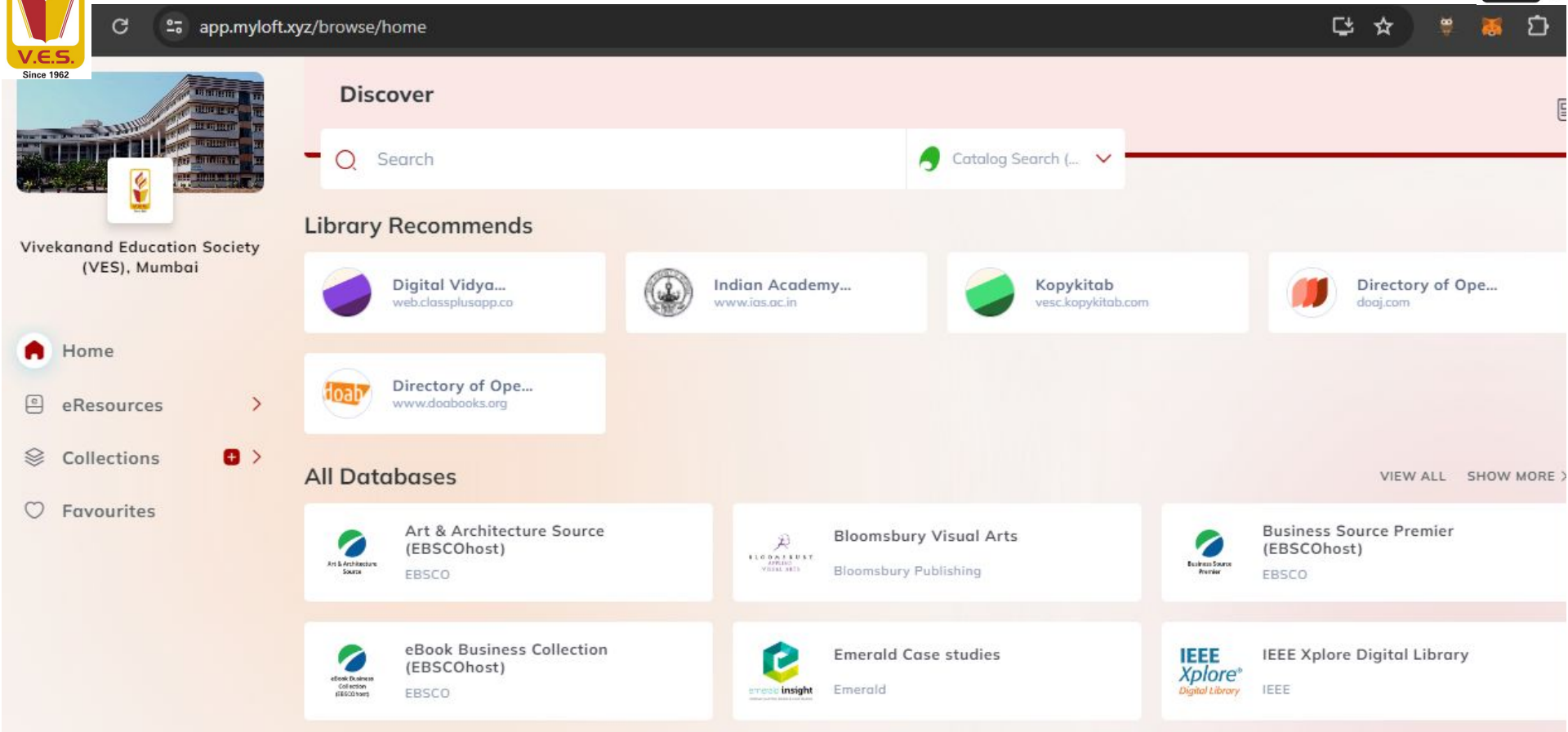
Good
Luck

THANK
YOU

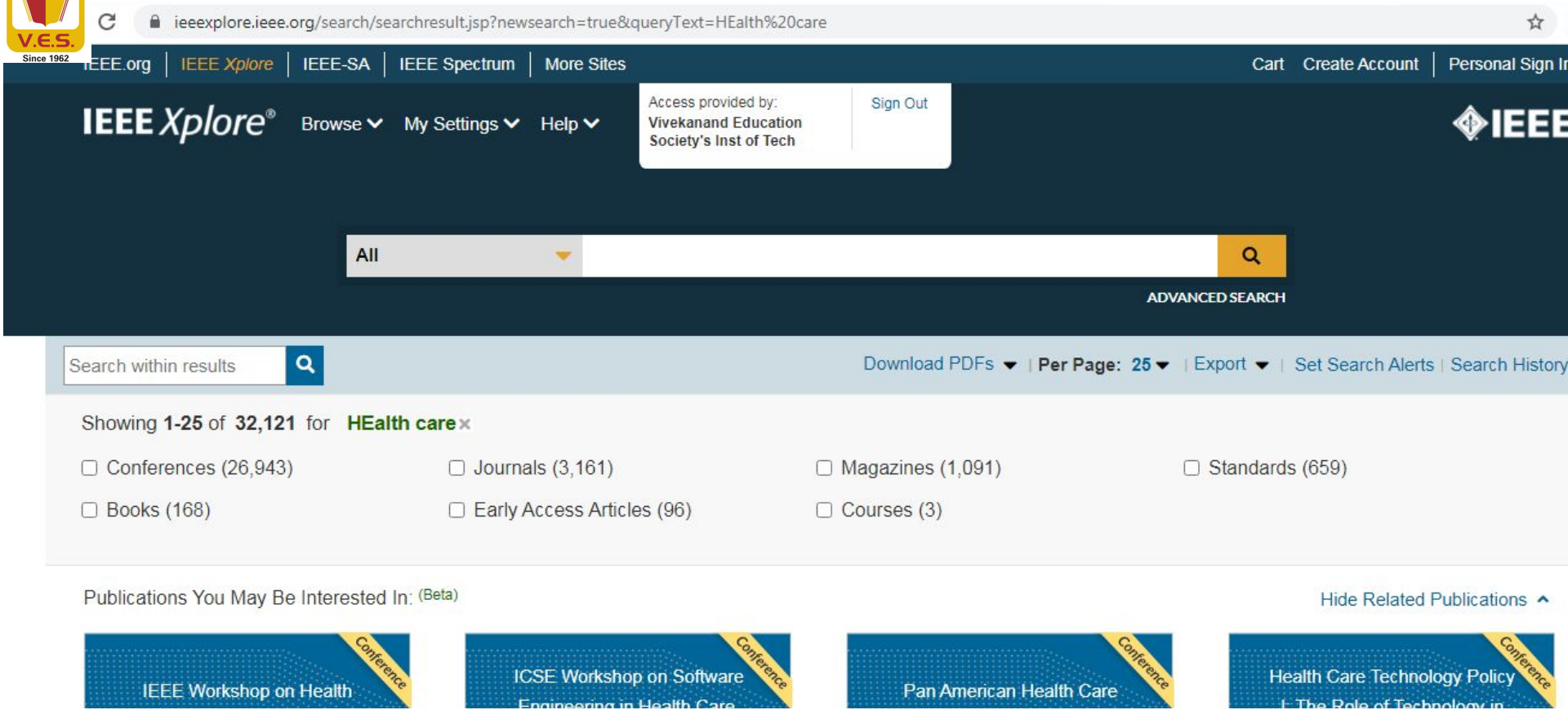
Where to search for Papers ?

- My Library on Finger Tips (MyLOFT) https://app.myloft.xyz/user/login?institute=cl889vws2e4za0a21rrzunoaa
  - Springer
  - ScienceDirect
  - IEEE
- IEEExplore
- Google Scholar
- CiteSeerX
- ScienceDirect

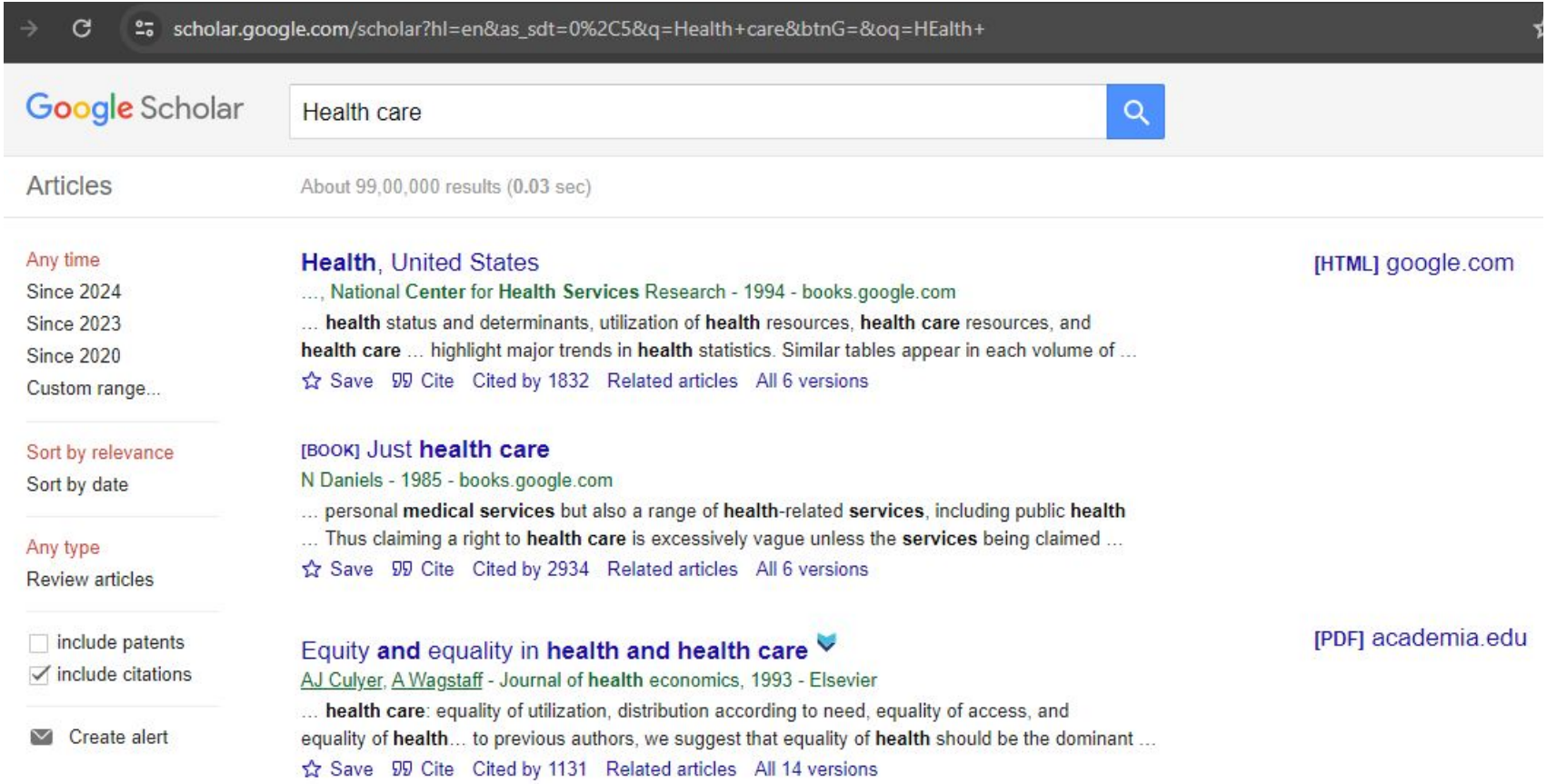
Where to search for Papers? - MyLOFT



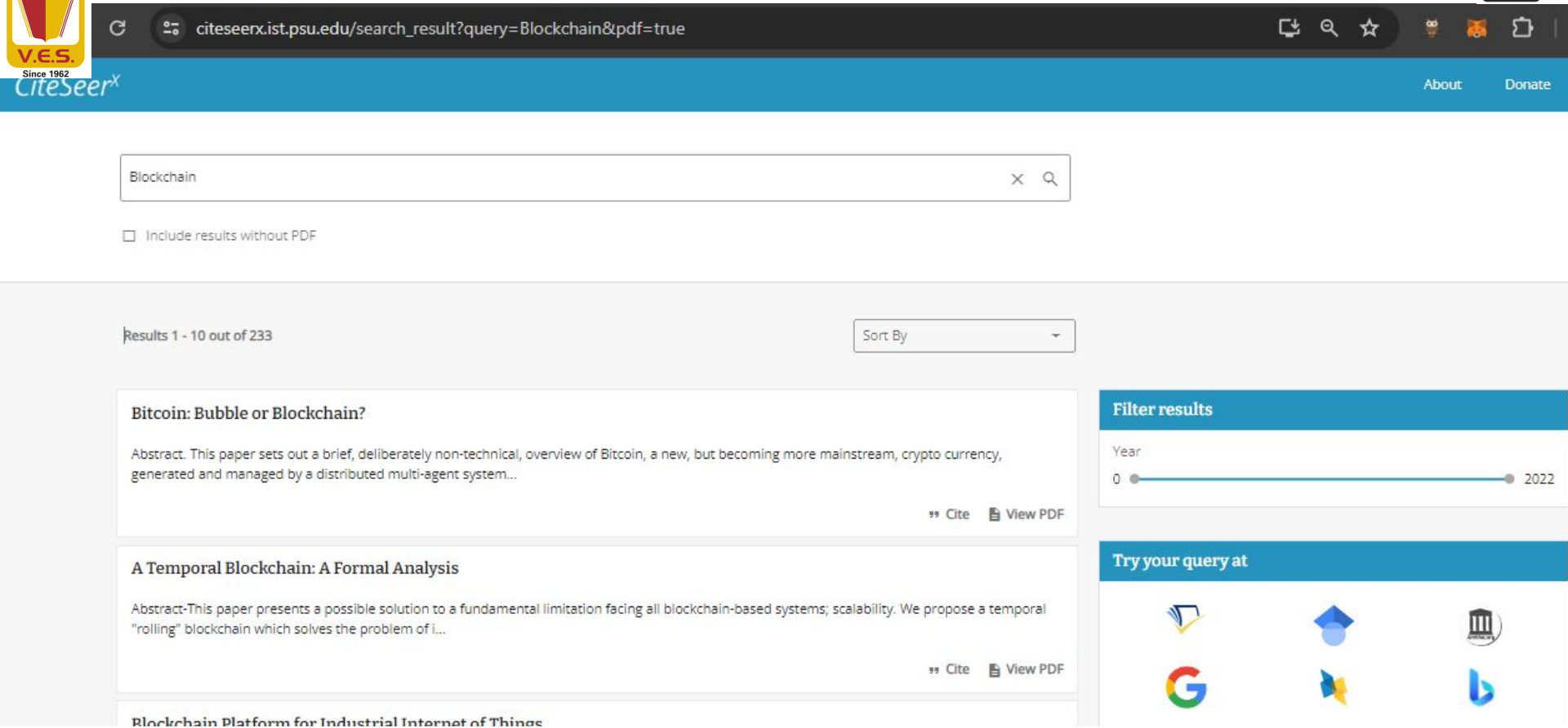
Where to search for Papers? - IEEExplore



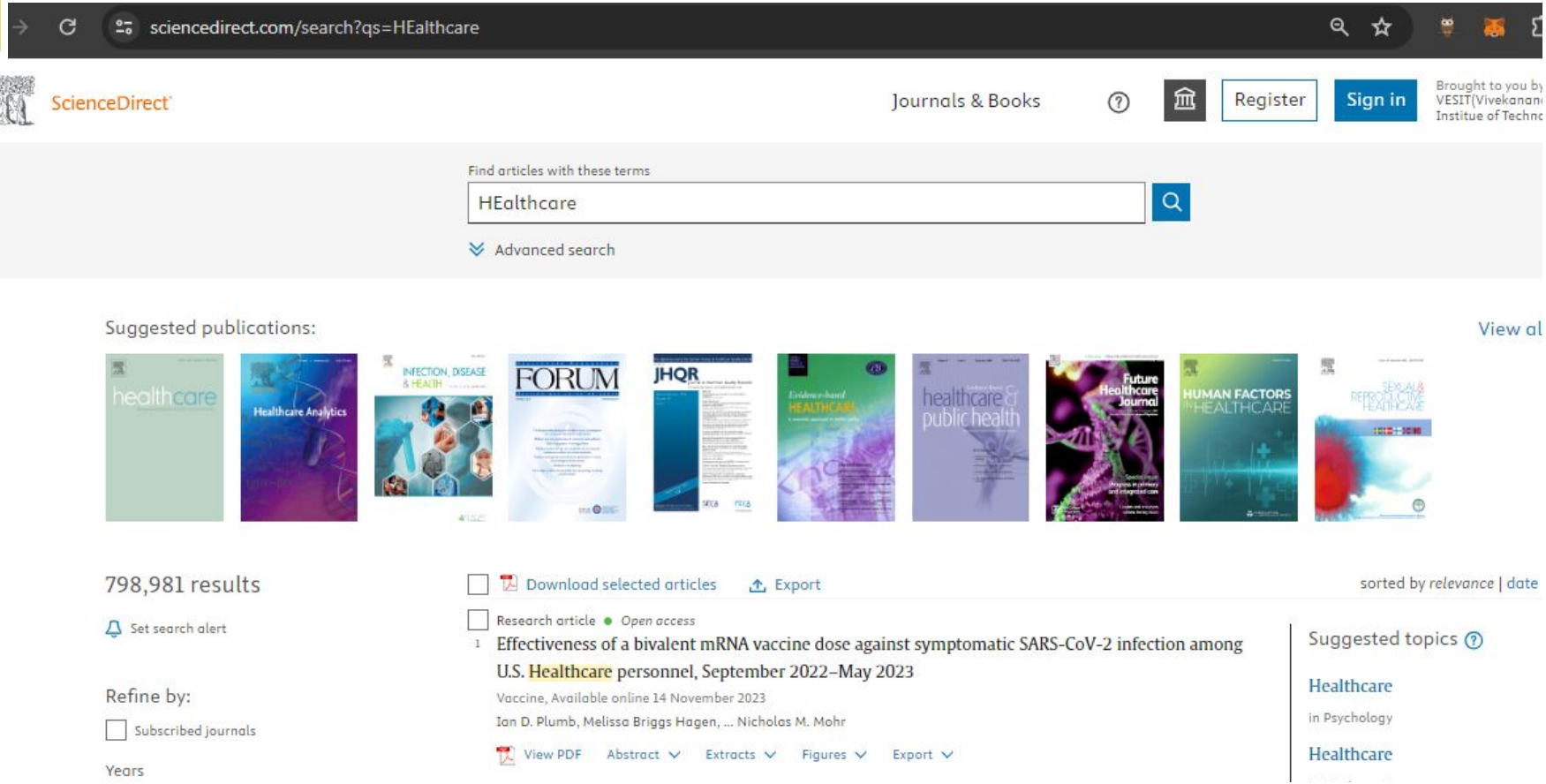
Where to search for Papers? - Google Scholar



Where to search for Papers? - CiteSeerX



Where to search for Papers? - ScienceDirect



Where to Publish Papers ?

- **Conferences**
  - **IEEE Conferences**
  - **Springer Upcoming Conferences**
  - **EasyChair Smart Call For Papers**
- **Call for Book Chapters** via Mails
- **Research.com**
  - Search Ranking of Journals & Conferences
- List of UGC Approved Journals & Conferences

- **Journals**
  - Reputed Journals
    - SJR - Science Journal Ranking
    - Scopus Indexed Journals
  - Fake Journals
    - Eg : https://www.ijsdr.org/
  - Inderscience Journals - Peer Review Journals
  - Open Access Journals
  - Call for Journals via Mails

Where to Publish Papers ?

- List of UGC Approved Journals & Conferences

CMPN_Upcoming Conferences cum UGC Approved Journal List

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VES Institute of Technology

Department of Computer Engineering

Upcoming Conferences & UGC Approved Journals List

Courtesy :

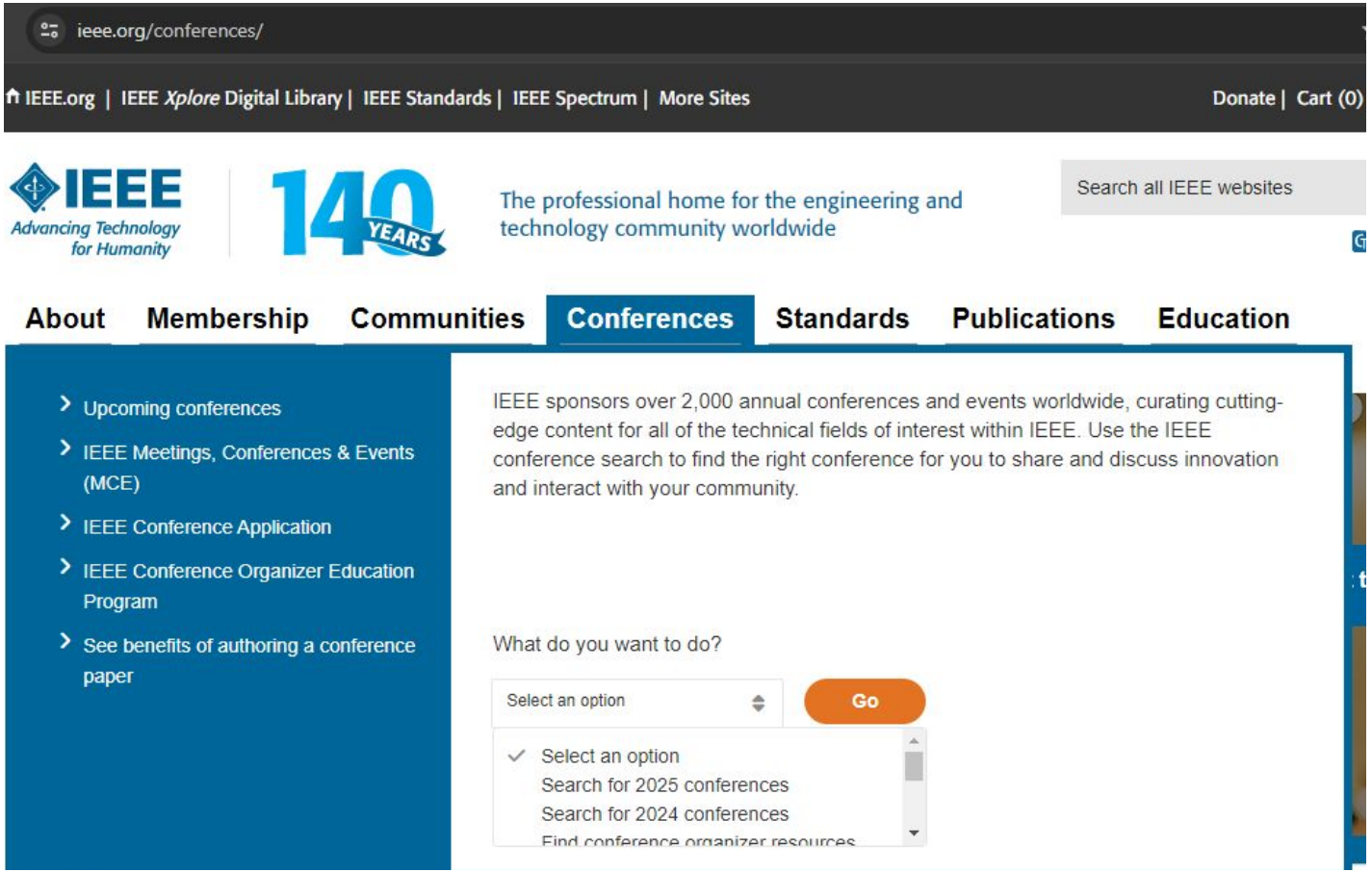
1. *UGC Care List maintained by Savitribai Phule Pune University*
2. *Scopus Website*
3. *Web of Science - Master Journal List*

- **Upcoming Conference List**
- **UGC Group I Journals List**
- **UGC Group II Journals Summary from Scopus & Web of Science**

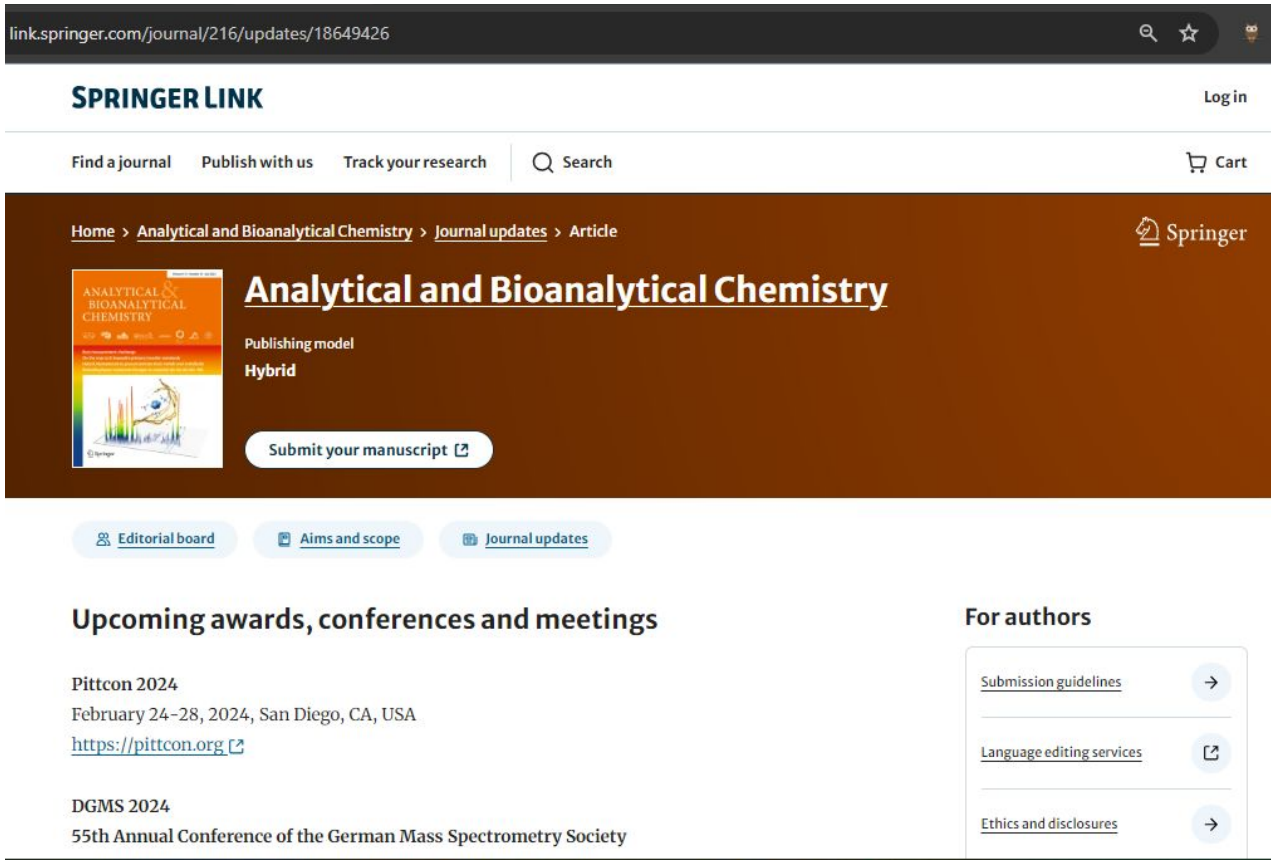
Upcoming Conference List

- 2nd International Conference on Data Analytics and Insights (ICDAI-2024), on July 25-27, 2024
- 3rd International Conference of UG Students (ICUS 2024) on March 1st & 2nd 2024

Where to Publish Papers ? IEEE Conferences



Where to Publish Papers ? Springer Conferences



Where to Publish Papers ? EasyChair Smart CFP

EasyChair Smart CFP

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Search

CFPs in India

This page displays all currently active CFPs in India.

Other CFP views: New CFPs | By area | By country | Topics | Random CFPs

Country Choice

Most popular countries: India, United States, China, UK, Italy, Japan, Germany, France, Spain, Portugal.

Select a country to view CFPs of conferences in this country: India

If the country is not shown, there is no CFP for this country.

CFPs

CFPs for conferences in India are shown in the table below. Newer CFPs are displayed first.

Showing all entries of 220 (1 to 220)

Acronym	Name	City	Submission deadline	Start date	Topics
FEMIT-2024	International Conference on Frontiers in Education, Management and Information Technology	Kapurthala	Mar 23, 2024	Apr 6, 2024	information technology; teaching and learning; business and management; languages and social science branches
ICMRTET-2024	Global Fusion:First International Conference on Multi-disciplinary Research Trends in Engineering and Technology	Lakshmeshwar	Feb 26, 2024	Mar 12, 2024	track 1: computing horizons; track 2: connectelec; track 3: smid
ICIKS-2024	International Conference: "Anubhuti: A Journey through Indian Knowledge Systems"	JAIPUR	Mar 11, 2024	Apr 26, 2024	nurturing global unity and collaboration; exploring indian sciences
ICCIDE-2024	3rd International Conference on Computational Intellgence and Data Engineering	Hyderabad	Jul 4, 2024	Dec 6, 2024	computing; data engineering; deep learning; artificial intelligence
SSWC2024	International Conference on Smart Systems and Wireless Communication	Kalyani	May 31, 2024	Nov 29, 2024	smart systems; wireless communication; machine learning; security solutions

How to Search for Reputed Journals ?

1. **UGC approved Journals**
2. **Web of Science WoS Journals**
3. **Scopus Indexed journals.**

https://docs.google.com/document/d/1VU107bptSLAEY42ov2UbRkLgf04qY0XlYDsOuSFPpVk/edit

Where to Publish Papers ? UGC Approved Journals

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≡ UGC-CARE List

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UGC

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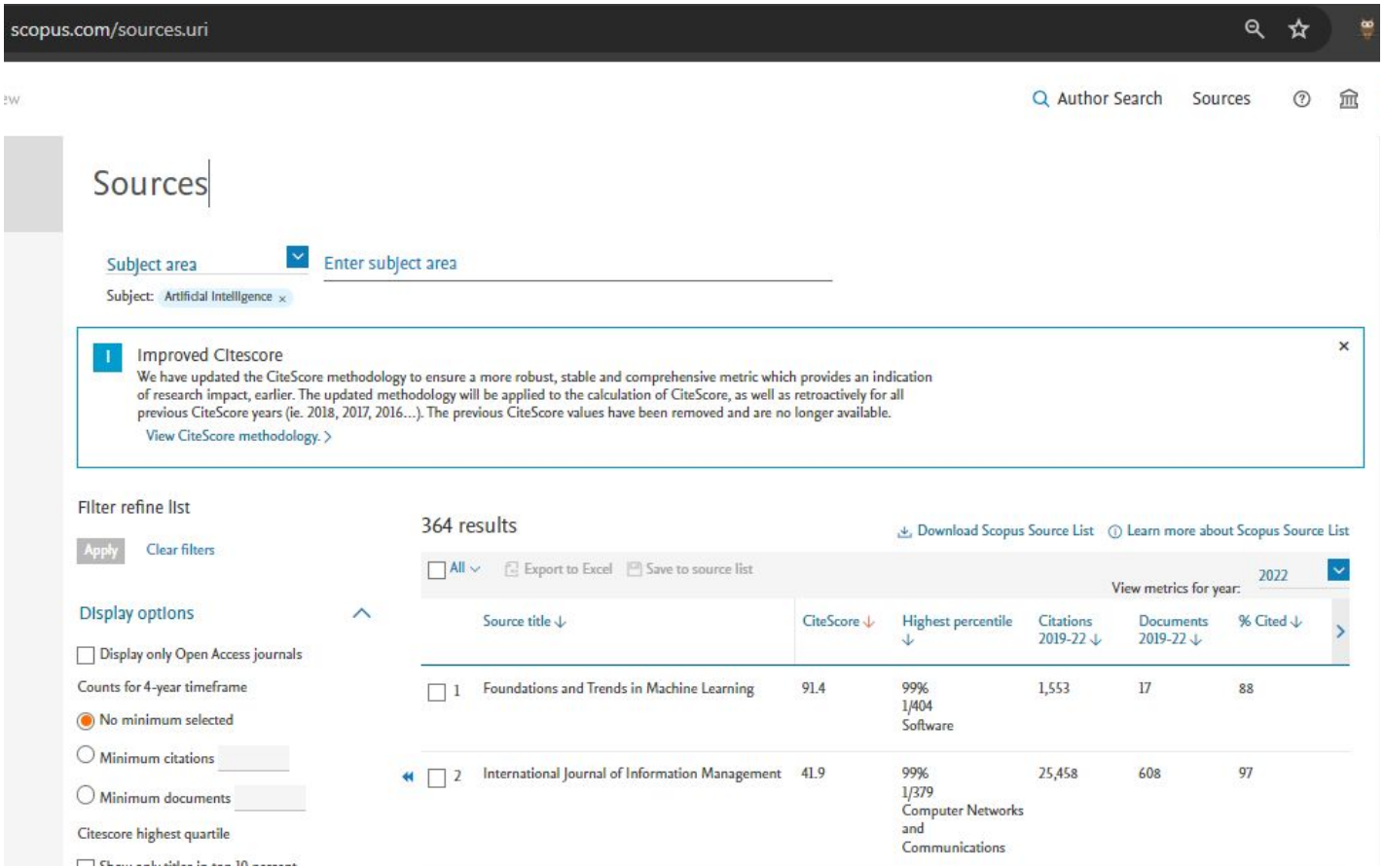
UGC-CARE List

You searched for "**computer**". Total Journals : 7

Search:

Sr.No.	Journal Title	Publisher	ISSN	E-ISSN	UGC-CARE coverage years	Details
1	AIS Transactions on Human-Computer Interaction	Association for Information Systems	NA	1944-3900	from June-2019 to April- 2021	Discontinued from April 2021
2	International Journal of Computer Theory and Engineering	International Association of Computer Science and Information Technology	1793-8201	NA	from June-2019 to July- 2023 (Presently Indexed in Scopus)	Indexed in Scopus
3	International Journal of Computer Vision and Image Processing	IGI Global	2155-6997	2155-6989	from June-2019 to Present	View
4	International Journal of Creative Interfaces and Computer Graphics	IGI Global	1947-3117	1947-3125	from June-2019 to Present	View
5	Vietnam Journal of Computer Science	World Scientific Publishing	2196-8888	2196-8896	from June-2019 to January- 2023 (Presently Indexed in Scopus)	Indexed in Scopus

Where to Publish Papers ? Scopus Indexed



Where to Publish Papers ? Web of Science Indexed

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Web of Science Coverage

Open Access

Category

Country / Region

Language

AFRICAN JOURNAL OF PRIMARY HEALTH CARE & FAMILY MEDICINE

Publisher: AOSIS , Postnet Suite 110, Private Bag x 19, Durbanville, South Africa, 7550

ISSN / eISSN: 2071-2928 / 2071-2936

Web of Science Core Collection: Emerging Sources Citation Index

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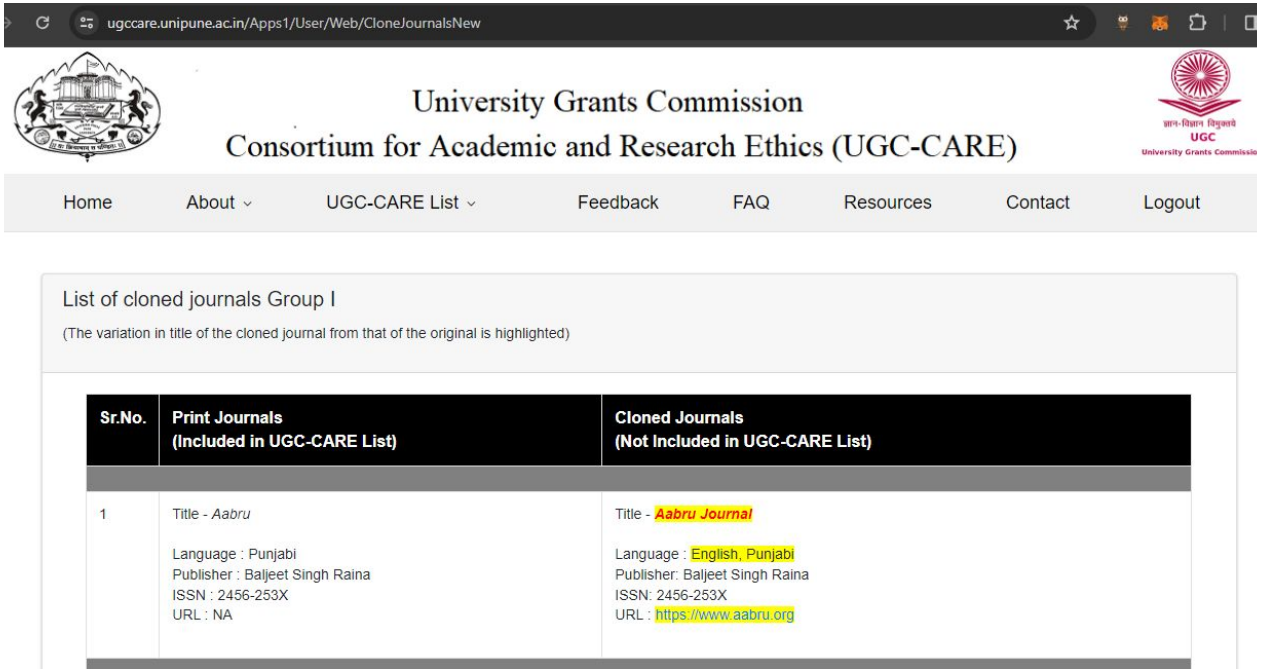

https://docs.google.com/document/d/1VU107bptSLAEY42ov2UbRkLgf04qY0XlYDsOuSFPpVk/edit

Further Reading :

- https://library.stonybrook.edu/scholarly-communication/know-journal-legitimate/
- https://www.ilovephd.com/how-to-identify-fake-journals/

Special Thanks

Dr. Nupur Giri , HOD, Computer Engineering

Dr. Gresha Bhatia, Dy. HOD, Computer Engineering