Seven C's of Communication

- Clear
- Concise
- Concrete
- Correct
- Coherent
- Complete
- Courteous

Types of *Technical* Communication

- Written
- Oral + Visual
- Body Gestures
- Electronic

Each of the type above can be divided in classes

1. One-to-one
2. One-to-Many

Tips for Success in Online Learning

- Treat an online course like a "real" course.
- Hold yourself accountable.
- Practice time management.
- Create a regular study space and stay organized.
- Eliminate distractions.
- Figure Out How You Learn Best.
- Actively participate.
- Make a Network with Other Students and work with them.

Consult [https://www.northeastern.edu/graduate/blog/tips-for-taking-online-classes/] and also [https://blog.edx.org/tips-for-successful-online-learning/].

Written Communication

- Technical
  - Language
  - Theorems and Proofs
  - Examples
  - Equations
  - Figures
  - Tables
  - References
- Creative
  - Language
  - Images
  - Sound pattern

Oral Communication

- Technical
  - Visual aids
    - Charts
    - Slides
- Non-Technical
  - Podium

Technical Communication

Technical Writing

- Thesis
- Paper
- Report
- Memo
- Proposal

Tech. Presentation

- Progress report
- Viva
- Project review
- Seminar
- Lecture

Fact 1

Technical Communication is an *ART*

Fact 2

Supervised Practice makes you BETTER

Fact 3

Writing and Presentation is for OTHER PERSONS – not for yourself

Fact 4

Technical Writing or Presentation is for some GAIN

Gain = MTech, PhD, Job, Project Money, Promotion, Fame, Recognition, Award, ...

Fact 5

Know / Understand the SUBJECT THOROUGHLY before Writing / Presentation

Fact 6

NO CHEATING

Fact 7

Speak the truth, Say nice things, Do not the speak the truth that is not nice.

Publish in a Journal

- For reporting NEW work, SIGNIFICANT work
- Job Requirement in Teaching and Research
- For Prestige, Reputation, Promotion

Papers

- Printed
  - Journals
  - Magazines
  - Conference Proceedings
- Presented
  - Conferences - abstracts/summary in Proceedings
- Internet
  - PDF or HTML files in online journals or blogs

Journal Papers

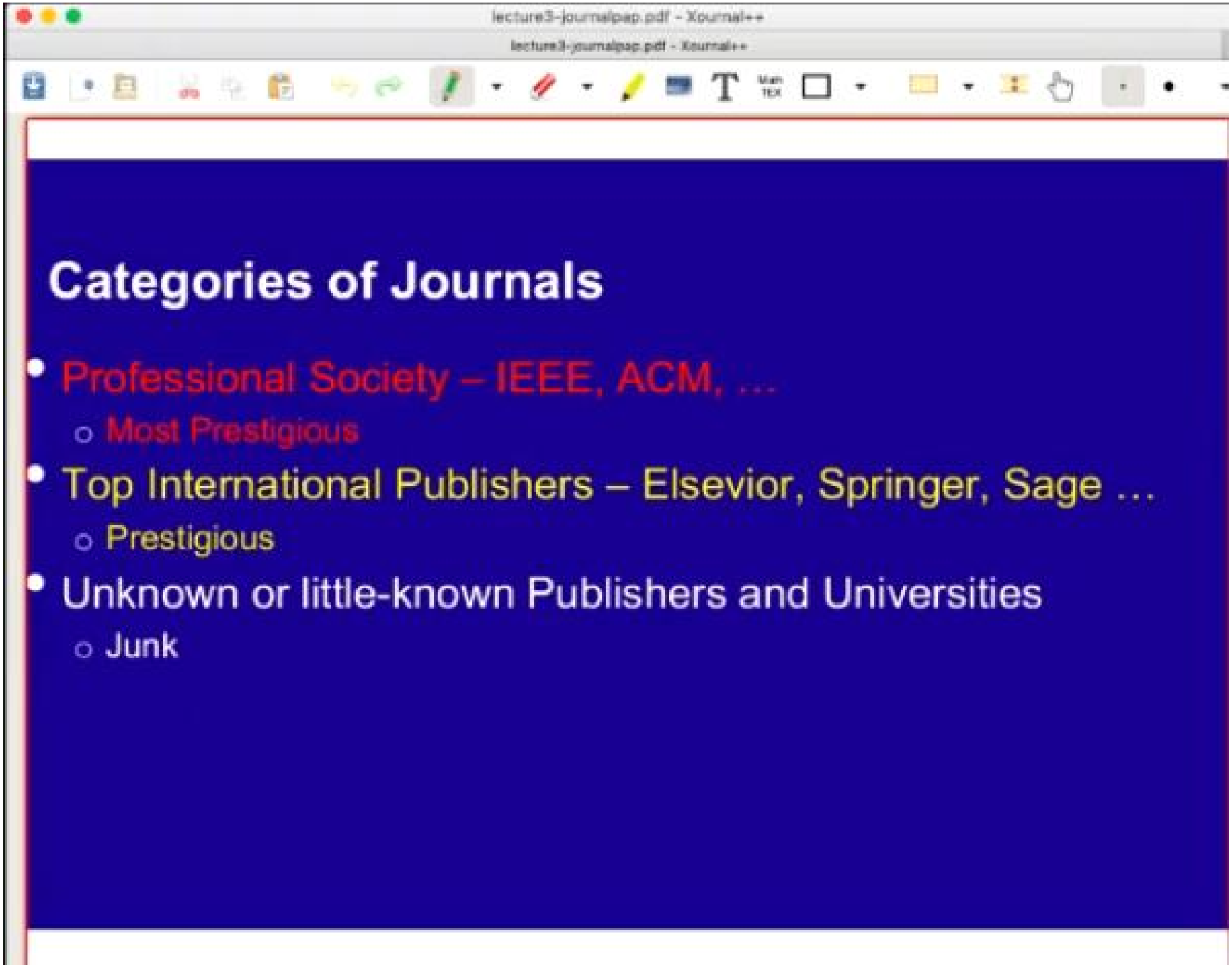
- More Prestige
- More Importance
- Archived for future

What is a Journal?

- Regularly published
- Soft bound collection of articles/papers
- Devoted to one subject area
- High quality professional articles
- Each journal = own style
- A team of Editors - well known professionals

What is a Journal

- Each Article is REVIEWED by 2-5 reviewers
- Reviewers = well known professionals selected by editors
- Articles = Letters (1-3 pages), Reviews (invited and many pages), Invited or Contributed articles (8-10 pages)
- Identified by a volume no., issue no., page no., year
- Archived in libraries according to volume numbers or year.


lecture3-journalpap.pdf - Xournal++
lecture3-journalpap.pdf - Xournal++
Categories of Journals
Professional Society – IEEE, ACM, …
Most Prestigious
Top International Publishers – Elsevior, Springer, Sage …
Prestigious
Unknown or little-known Publishers and Universities
Junk

Payment for Journals

- Unpaid if the final paper is less than N pages
  - Prestigious
- Paid
  - Not much Prestige
  - Quicker
  - Online PDF based

Which Journal?

Zillions of Journals

Choose

- Journals published by Well-Known Professional Societies or Publishers

(IEEE, IET, ACM, AMS, SIAM, IETE, ...)

(Elsevier, Wiley, Springer, ...)

- Journals with a high Reputation
- Journals which we read and cite from
- Journals published regularly for several years

Which Journal?

Avoid

- Journals started last month
- Journals from unknown publishers
- Journals published in countries without well-known scholars
- Journals without review
- Journals that do not show the results of review
- Journals that ask for money after acceptance

(Most journals asks for a fee if the paper after revision is longer than 8-10 printed pages)

Submitting to a Journal

- Prepare the manuscript according to Journal's Instruction and Style
- Submit a cover letter and your manuscript Online following all the Instructions

Journal Publication Process

- Save the Email from the Journal Office with a manuscript number
- Wait 2-8 months
- Editor sends an email
  - Acceptance
  - Rejection
  - Request for Revising with A set of comments from Reviewers

Revising

- Control your ego
- Read comments carefully,
- make corrections and changes according to the reviewers' comments
- Send back the revised manuscript and a POLITE letter where you write a response to EACH comment of every reviewer

Journal Publication Process

Editor or Associate editor writes back

- Acceptance
- Rejection
- More Revisions (go back to the previous slide)

After Acceptance

- A submission of the final revised version with large and high quality diagrams and photos
- Pay page-charges if too large a paper
- Wait
- Final corrections on the Galley proof of the paper (within 24 hours)
- Wait
- Paper PUBLISHED :-)

Giving Credit

Everybody who contributed = Coauthor

Everybody who helped indirectly = Mentioned in the Acknowledgement section

Every paper/document consulted = Item in References

Journal Paper Structure

- Title
- Authors with Address
- Abstract
- Keywords for Indexing
- Introduction
- Body ... Theory, Your method, Results
- Conclusion
- Acknowledgement
- Appendix with long derivations
- References
- List of Figure captions
- List of Table captions
- Author's photo and bio (some journals)

References and Citation

1. A master list of PDF files of papers in Zotero (Mendeley or Jabref)
2. Extract BibTeX database from Mendeley, Zotero or Jabref
3. Edit (add to) manually
4. A MASTER LIST in Zotero or Mendeley or JabRef (for BibTeX) or EndNote
5. Insert Citation in the proper Style in manuscript from the MASTER LIST

Reading

- Healthy Body ← Balanced Diet
- Healthy Mind ← Balanced Reading
  - Books, Magazines, Journals, Newspapers, ...
    - Classics and Scriptures
    - Fiction, Non-Fiction, ...
    - Technical, Non-technical, ...
  - Read as much as possible
  - Read Good books, magazines,...
  - Good Books → Good Knowledge → Power

Research & Reading

- No reading → Weak mind → No Deep Thinking → No Innovative Ideas → No Research or Poor Quality Research

Research & Reading

- No reading → No Research or Poor Quality Research
  - No or Poor Quality Publications
  - Poor Quality Jobs/Business and Career

Reading for Research

- Read with a Notebook and a Pencil (Electronic → Xournal++, ...)
- Read slowly and Consult a Good Dictionary (English-English or English-Mother tongue)
- Use Underlining or write Notes in the Margin
- Derive the Equations (2), (3), ... to Verify the Theory
- Simulate the Experiments to Verify the Results in the Books or Papers

Reading & Writing

- Read English Books, Journals, Newspapers, Magazines, ...
  - Learn Style
  - Paragraph structure
  - Sentence structure
  - Words
- Read & Think & Understand
- Write a Summary on What you Understood (Zotero)

Listening

- Important part of Oral Communication
- Listen with Full Attention
- Take Notes –
  - Meetings with Supervisor, Boss, Seminars, Group Meetings, Classes, ...
- Listen to Remember
- Listen and then Act

Effective Listening

- Maintain Eye Contact – same horizontal level
- Use Appropriate Gestures
- Ask a few Pertinent Questions and Make simple Comments
- Be Non Judgmental

Effective Listening

- Remain Calm
- Do not provoke nor argue with the speaker
- Do not try to show off yourself
- Do not take any hasty decision while listening

Effective Listening

- It is an ART.
- Practice carefully
- People appreciate a patient listener

Text File for LaTeX

- First line = \documentclass[11pt]{article}
- Then a series of prepackaged modules are called –
  \usepackage{amsmath} \usepackage{hyperref} ...
- \title{document title}
- \author{your name \\DAIICT, Gandhinagar...}
- \begin{document} \maketitle ... your text etc .....
  \end{document}

Advantages of LaTeX

- Made by for Technical documents with Equations, Tables, Figures, References
- Free packs available
- Default typesetting for most top journals and universities
- Very high quality
- Automatic numbering of equations, figures, tables and references, footnotes, sections, pages, ...
- Cross-referencing is easy
- Extremely flexible and powerful

Presentations to Support

- Conference paper
- Proposals
- Invention disclosure
- Thesis

Why Presentations What

- To announce your invention/ research work
- To propose and get money for a new technique/ system
- To educate on your subject/ research/ views
- To sell/ advertise your product/ idea
- To get a new job
- To reach out

A Presentation = Lecture +

- Graphics/ Hand-outs/ Audio-visual Aids
- Effort to secure a predetermined response

Various Types of Technical Presentations

- Examinations
- Project Review/ Performance Review
- Getting a new project/ grant
- Publicity/ Ad/ Selling
- Teaching
- Outreaching/ Interaction - Conference
- Learning

Presentations vs. Writing

- Immediate
- Real time
- Face to face

- Long Term
- Archival
- Non Contact

Know your AUDIENCE

- Professors
- Supervisors/ managers
- Customers
- Co-workers
- Conference Attendees

(SUPERVISED)

PRACTICE

MAKES

PERFECT

Make a Video/Screen Recording and Watch it Many times with Friends and Family

Take time

to prepare

your Slides

Number of Slides = Number of Minutes Allowed

HAVE A THOROUGH AND DEEP

UNDERSTANDING

OF YOUR SUBJECT

- Poor understanding → bad reports & seminars

Do NOT talk about

what you do not know

or

what you have not done

Technical Presentation
= *Show Business*

- Make it interesting
- Be familiar with the room and a.v. set-up
- Look at your audience
- Use your hands or forget them
- Use Voice control
- Avoid vocal and gesture mannerisms
- Be RELAXED, Be SINCERE

Technical Presentation

≈ *Show Business*

- Observe time limit
- Dress Neatly and Decently
- Time manage topics
- Jokes/anecdotes/Humor
  - only if it comes naturally and is not offensive

Technical Presentation

= *Show Business*

- Make it interesting
- Be familiar with the room and a.v. set-up
- Look at your audience
- Use your hands or forget them
- Use Voice control
- Avoid vocal and gesture mannerisms
- Be RELAXED, Be SINCERE

A Presentation

- Descriptive Title
- Introduction -Tell them what are you going to tell them
- Discussion -Tell them
- Conclusion -Tell them what you told them

Know your AUDIENCE

- Professors
- Supervisors/ managers
- Customers
- Co-workers
- Conference Attendees

A Presentation

- Descriptive Title
- Introduction -Tell them what are you going to tell them
- Discussion -Tell them
- Conclusion -Tell them what you told them

Focus of Your Presentation for Thesis/Paper

- Your Problem
- Your Work
- Your Contributions/Innovations
- Advantages from Your Work

Audio-Visual Aids

- Keep it Simple
- "Less is More" - audience attention span is short
- 1 picture = 1000 words
- 1 minute/ slide
- Equations/ Maths - Be Careful

Summary

- Technical Presentations
  - What
  - Why
  - Guidelines, Tips
  - Audiovisuals

MTech and PhD Degrees

- Research based degrees.
- Objective = Learning + Research Contribution + Documentation = Thesis.
- Preparation for Research and Development and Teaching Career.

What is Research

Adding to the existing body of knowledge of a topic or a domain.

What is Research

- Developing a new/original technique, observation, algorithm, theory, ...
- Continuing an original work done by others, esp. the Supervisor
- Providing an original technique, ... in an unoriginal but competent piece of work
- Developing several small original ideas, methods, and algorithms, ...
- Showing originality in testing somebody else's ideas.
- Finding a counter-example or fallacy in somebody else's ideas.

Doing Research

- Select a Supervisor (Active and Experienced)
- Select an Area
- Select a Problem
- For $i = 1$ to n
  1. Read between lines, Discuss, Understand
  2. Develop Ideas
  3. Analyse, Design, Simulate, Experiment
  4. next i
- Write papers, Submit Progress Reports, Go to Conferences
- Write a Thesis

Thesis

- Final Document
- Record of Your Achievements
- Reviewed by the Supervisor and Experts
- Archived in the University Library/ ShodhGanga Repository

Organization of the Thesis

Follow the Guidelines of the University

1. Front Matter
2. Main Body
3. Back Matter

Main Body

1. **I**ntroduction
2. **L**iterature Survey
3. **M**ethod
4. **R**esults
5. **D**iscussion of Results

Introduction: Chapter 1

Main Theme = WHY

1. Broad area of your problem (2-3 para)
2. *Your Problem* (2 para.)
3. Current state of this problem in global scenario (2 para.)
4. Approach taken (1 para.)
5. Highlight of Results (2 para.)
6. *Your Contributions* (1 para.)
7. Organization of this Thesis (1 para.)

Remember: Introduction should have structure of a *funnel*.

Method: Chapter 3, . . .

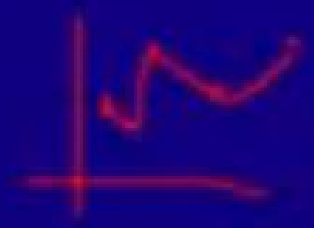
Main Theme = HOW

- Basic Theory
- Your Approach in Solving
- Your Analysis, derivations, theorems, proofs, . . .
- Your Case-Study, Your Choice of Data, Your Programs, Simulations . . .
- Your Experiments: Lab or Numerical

You need for good research

- Solid analysis
- Analysis+Simulation based on good data
- Analysis+Lab Experiments
- Analysis + Simulation + Experiments

Results: Chapter $N-3$



Main Theme = WHAT

- Results out of Analysis, Simulation and Experiments
- Graphs, Charts, Tables of Data

Discussion: Chapter $N-2$

Main Theme = So WHAT

- Interprete your results not paraphrase
- Do not extrapolate
- Use numbers not adjectives
- Follow standards

Chapter $N-1$ = Future Works (a few paragraphs)
Chapter N = Conclusion or Summary (a few paragraphs)

Front Matter

- Cover page from the University
- Page with Certification and Signatures
- Title Page
- Dedication
- Acknowledgement and Thanks
- Abstract (500 words)
- Table of Content
- List of Figures
- List of Tables
- List of Acronyms used

Back-Matter

- List of References
- Appendix 1, 2, ... with long derivations and calculations
- Codes written

Thesis Submission

Follow all the guidelines of the Department and the University

- Get plagiarism checked
- Fill up the forms

After Thesis Submission

- Thesis is sent to reviewers selected by the authority
- Wait for reviews
- Loop for revisions and submissions
- If comments are positive then thesis defence is arranged by the University

Thesis Defence

Presentation + Oral Exam

Thesis Defence

- Follow the guidelines in our previous lecture.
- Dress properly.
- Have a backup pen-drive, CD-rom, laptop in case things fail in the exam room.
- Sleep for 8 hours in the previous night and be calm and show enthusiasm in the presentation.
- Do not give up on questions you do not know - try to derive the answer.

Expectation of Examiners in Thesis Defence

- Maintain time
- A good understanding of the main subject
- A good understanding of the problem and related areas
- Aware of the literature, esp. the recent papers
- Understanding of the results obtained
- Aware of the contribution
- Future extension of the work

After the Defence

- Final Corrections
- Final Printing and E-copy
- Binding of the thesis (University Guidelines)
- Submission of copies ☹
- Continue the research and writing . . .

Overview

- **A Traditional (non-virtual) Conference**
- Which Conference?
- Submitting a Paper to a Conference
- Writing a Paper for a Conference
- Oral or Poster Presentation
- Writing the abstract

Traditional Conference

- Gathering of professionals in one location for a few days
- Around one topic
- Also combination of Many Topics

Virtual Conference

- Arranged Online
- Video teleconference (Meet, Zoom, …)
- Mostly free
- Online registration needed
- Needs Bandwidth and Free time

Various Names

- Conference
- Congress
- Convention
- Annual Meeting
- Symposium
- Topical Meeting
- Workshop

Why Go to A Conference?

- Meet and network with peers
- Advertise own research work/progress
- Showcase products
- Getting new ideas
- Job hunting
- Social Hour
- Sight-seeing
- Good time with friends

Why Join a Virtual Conference

- Listen to lectures of experts
- Learn
- A paper may be published in an online proceeding

Which Conference ?

- Popular and famous in your subject
- Held in a Top Institute/Organization
- Held in a nice place with good hotels, or guest houses
- Good sight-seeing or where your friends live
- Organized by famous, high-quality societies like IEEE, ACM, SPIE, …
- Being held at a regular frequency over several years
- Low acceptance rate = high-quality

Don’t Go to

- Low quality conferences
- Held in a bad place
- Conference in a college or university you don’t care for or have not heard about
- Conferences without review

Conference Papers

- Immediate notification of your work to a peer group
- Your activity
- Progress report
- Advertisement of your capability etc.

Submitting a Paper to a Conference

- Follow their Instructions
- Fill out the forms
- Maintain Deadlines

- Extended abstract (word limit or page limit)
- 2-4-6 page paper with figures etc

Submitting a Paper to a Conference

- Revise following Reviewer's comments (only a few cases)
- If accepted submit a Camera-ready paper
- Pay registration fee (look for discounts)
- Maintain Deadlines