CSE574
Project Guidelines

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These slides are available on-line at:

http://www.cse.wustl.edu/~jain/cse574-22/

Student Questions

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Overview

- Project Requirements, End-Goal
- Literature Search
- Outline: Preparation Process, Mind Maps
- Writing: Organization, List of Acronyms, References
- HTML Style Guidelines
- Draft Submission
- Final Submission

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Project Requirements

- Comprehensive Survey:
  Technical Papers, Industry Standards, Products
- Will be published on my website,
  Better ones may be submitted to magazines or journals

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Project Requirements (Cont)

- No copyright violations:
  ⇒ You need to re-draw all figures
  ⇒ You need to summarize all ideas in your *own* words
  ⇒ Cannot copy any part of text or figure unmodified
  ⇒ Short quotes ok
  ⇒ Any unmodified figures need permissions

  Any infringement will result in forfeiture of grades even after graduation.
- See papers in previous courses, e.g.,
  http://www.cse.wustl.edu/~jain/cse567-13/index.html
  http://www.cse.wustl.edu/~jain/cse571-11/index.html
  http://www.cse.wustl.edu/~jain/cse574-10/index.html

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End-Goal

- Paper that can be published as a survey paper in any magazine, journal, conference

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Google Search Modifiers

- filetype:pdf, doc, ppt, pptx
- site:wustl.com
- intitle:trend
- inurl:trend
- allintitle:Networking Trends
- Allinurl:
- " " ⇒ Exact Phrase
- OR
- AND
- + ⇒ Must include
- - ⇒ Not include
- ~X ⇒ X or similar
- * ⇒ Wildcard

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Google Search (Cont)

- Google search, https://en.wikipedia.org/wiki/Google_Search
- How to search Google, http://www.wikihow.com/Search-Google
- Google Guide Quick reference: Google advance operators cheat sheet, http://www.googleguide.com/advanced_operators_reference.html
- Search Tips & Tricks –Inside Search – Google, http://www.google.com/intl/en_us/insidesearch/tipstricks/all.html
- How to search on Google: 31 Advanced Google Search Tips, http://blog.hubspot.com/blog/tabid/6307/bid/1264/12-Quick-Tips-To-Search-Google-Like-An-Expert.aspx
- Search Operators, https://support.google.com/websearch/answer/2466433

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Project Homework 1

- Search web pages, books, and journal articles from IEEE XPlorer, ACM Digital Library, MOBIUS, Safari books, ILLIAD at Olin Library for **one** of the following topics:
  1. Wireless Networking Trends
  2. Mobile Networking Trends
  3. Internet of Things
- On the web try the following search points:
  - http://library.wustl.edu/findart.html
  - http://library.wustl.edu/fulltext/
  - http://scholar.google.com
  - http://books.google.com
  - http://dl.acm.org/
  - http://ieeexplore.ieee.org/Xplore/home.jsp

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Project Homework 1 (Cont)

- Ignore all entries dated 2011 or before. Also ignore all entries that do not indicate topic or similar words in the title. List others in the following format (5 each):
  - Author, "Title," publisher, year, ISBN. (for 5 books)
  - "Title," URL [One line description] (for 5 web pages)
  - Author, "Title," source (for 5 technical/magazine articles)
- For the books, include whether the book is available at WUSTL, MOBIUS, Safari, or ILLiad
- Serially number the references and submit electronically to jain@wustl.edu. The mail should have a subject field of "CSE 574 Project Homework 1" (Please note the subject carefully. Do not any other characters in the subject). Your answers should be the content of the message and not in an attachment.
- Make a list of other interesting search points and share in class.

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Common Mistakes in Project Homework #1

- Not indicating where the book can be found in WUSTL
- Listing books/Magazines/journals that have little to do with the topic – may show up in search engines because of a minor mention of the topic or words
- Web Pages – No one line descriptions
- Incomplete bibliographic data for journal articles. Need volume, issue, year, pages.
- Missing journals. Need names of journals dealing with the topic chosen.

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Survey Topics

1. O-RAN
2. Open RAN
3. Computing in Communication Networks
4. Deep Learning for the Physical Layer
5. OTFS and Delay-Doppler Communications
6. Quantum Communications
7. High-Altitude Platforms: Balloons or Planes
8. LEO Satellite Communications
9. Private 5G: 5G for in-company use
10. 5G Advanced
11. 6G
12. Composable Networks
13. Open APN
14. Service Mesh
15. Time Sensitive Networking
16. Container Networking
17. Light Communications
18. Next Generation Vehicle-to-X
19. EDMG IEEE 802.11ay
20. Wireless Charging
21. Nano radio

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Literature Search

- Conduct searches in two phases. In the first phase, use the title words of your project. After reading these, conduct another more comprehensive search.
- Remove articles that are not useful
- No limit to the number of references
- Follow the references in references

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HTML Style Guidelines

- See papers from previous classes on my website for details
- Use plain text editors with simple html
- No Java, flash, animation
- Do not use HTML generated by MS Word. It will not pass any HTML validation test. Save the word file as plain text and add HTML tags.
- Learn to use special characters in text and reference URLs. See
  - http://www.w3schools.com/tags/ref_urlencode.asp
  - https://perishablepress.com/stop-using-unsafe-characters-in-urls/
- HTML5 only

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Header

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>
<meta name="Author"
<meta name="robots"
<meta name="Keywords"
<meta name="Description"
</head>
```

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Body

```
<body>
<h1>Title</h1>
<B>Author</B>, Permanent-Email
<h2>Abstract:</h2>
...
```

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Body (Cont)

```
<h2><a id="toc"></a>Table of Contents:</h2>
<ul>
<li><a href="#sec2">2. 10-Gigabit Ethernet Overview</a></li>
<ul>
<li><a href="#sec2_1">2.1 Benefits of 10-Gigabit
    Ethernet</a></li>
...
</ul>
</ul>
<hr>
```

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Body (cont)

```
<h2><a id="intro"></a>Introduction</h2>
...
<p>[<a href="#grow99">Grow99</a>]
<p>
...
<br>
```

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Project Homework 2

- Prepare a short webpage (written manually) using most of the tags indicated in this handout
- Include one image/photo in the page
- Validate the page using:
  - https://www.onlinewebcheck.com/check.php
  - https://www.freehtmlvalidator.com/
- Check the Google-friendliness of the page: https://varvy.com/
- Submit the html source file printout, web page printout, and the URL
- Remember:
  - To add all meta tags specified in the handout
  - Validate the page
  - Load it in an ad-free area

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WUSTL Engineering Student Webpages

- IT will create the URL: http://students.cec.wustl.edu/cse574s_sp16/<wustlkey>
- For example: http://students.cec.wustl.edu/cse574s_sp16/jain/
- On Linux this corresponds to: /project/websites/cse574s_sp16
- On Windows this corresponds to: \\warehouse.cec.wustl.edu\websites\cse574s_sp16

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Common Mistakes in Homework 2

- Not using parameters for meta tags
- Not validating

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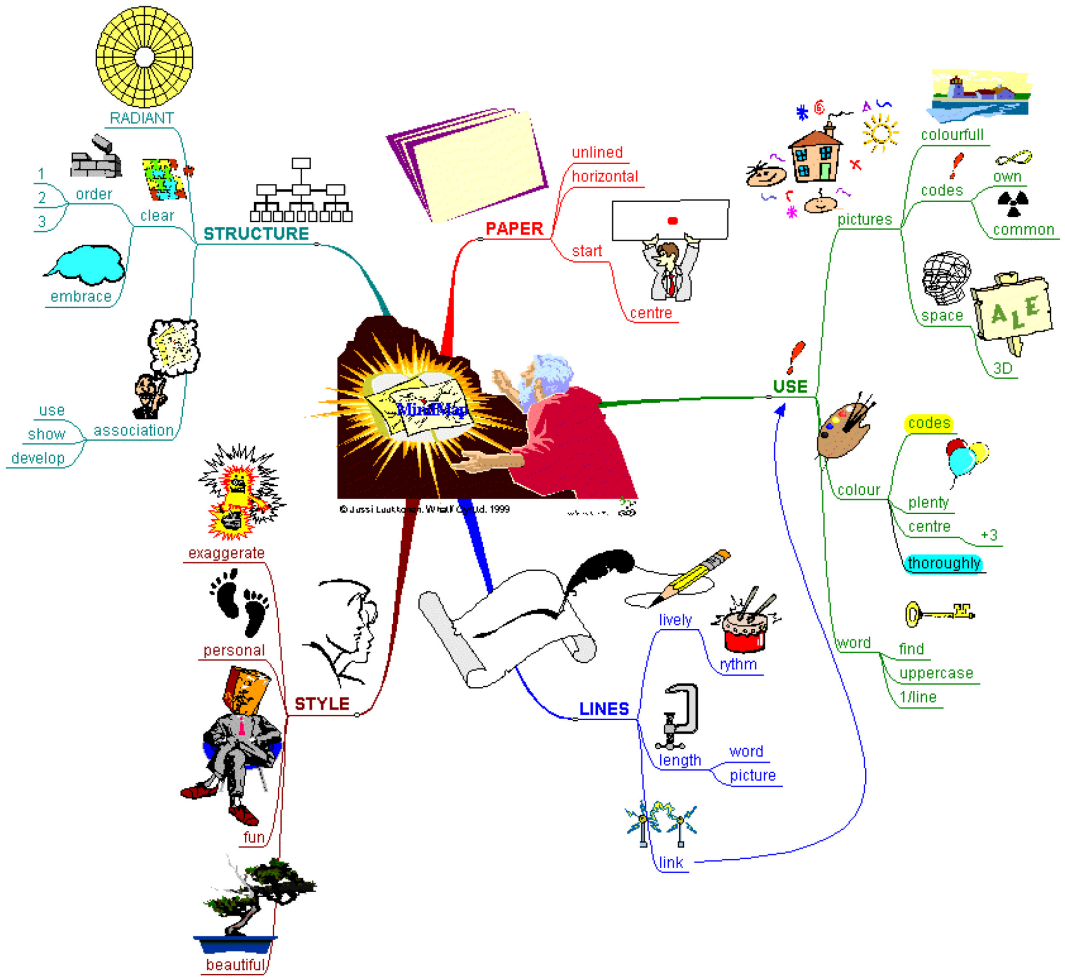
Outline Preparation Process

- Read abstract and stop if irrelevant
- Underline the key points in the paper
- Write the key summary on the first page of the paper
- Prepare a text document with the key ideas
- Keep adding to this text document document from different papers with [refs, page, paragraph]
- Import the text document in PowerPoint
- Add figures and clean up the outline
- Like getting ready to make a presentation to the class

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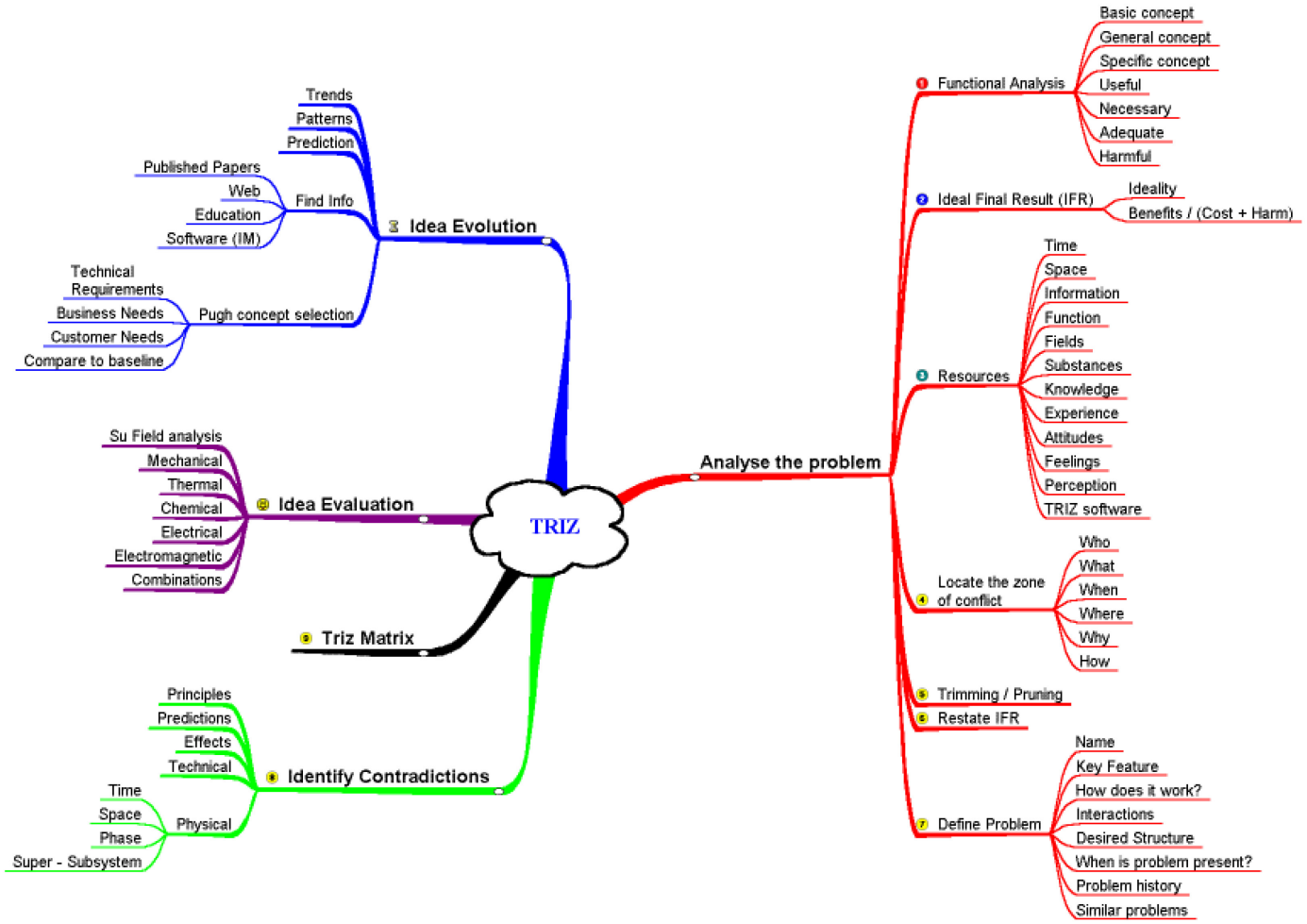
Mind Maps



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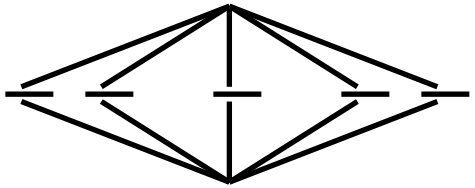
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Mind Maps (cont)



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Diamond Writing Style



- Each paper should start with an introduction and end with a summary.
- Each section should start with a short introduction and end with a summary with a lead in to the next section. The same applies to subsections.
- All subsections should be of comparable length.
- Add an appendix with all abbreviations
- Add a list or discussion of related products

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Writing Style

- Readers want to get to the information fast. Keep the nonessential stuff at the end.
- Check thoroughly for grammar and spelling.
- Avoid excessive use of abbreviations.
- Be consistent in case and usage: MOBILE, Mobile, mobile

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Organization

- Every paper should have an introduction and a summary.
- Divide paper in to sections.
- Every section should have a lead-in paragraph.
- Header level should correspond to the level in table of contents.

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Organization (Cont)

- Title
- Author
- Abstract
- Keywords
- Table of Contents
- Introduction
- Other Sections
- Summary
- References
- List of Acronyms
- Date Last Modified:

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Organization (Cont)

- Table of Contents
  - Sections and subsections
  - Numbering n.n
  - 3-7 subsections per section
  - 3-7 sections per paper
  - Include one first and 2nd level headers n. and n.n
  - Do not include 3rd and higher levels, e.g., n.n.n

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Title/Keywords/Abstract

- Title
  - Based on Table of contents
  - Searchable
- Abstract
  - Based on Table of Contents
  - 3-7 sentences
  - Emphasize what part of course was used in the paper
- Key Search words
  - Based on Table of contents
  - Acronyms and full names
- Description:
  - One line based on ToC and Abstract

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Organization (Cont)

- Introduction
  - Explain what the topic is about.

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Other Sections

- Each section less than 3 pages.
- Each section needs at least one introductory paragraph. Do not start with a subsection.
- Each subsection at least 1 paragraph.
- All sections/subsections should be numbered n. n.n
- If you borrowed several sentences from some source, italicize the text and indicate the source.

Never write a sentence with the original source in front of you. This will block you from writing it in your own words. Write ideas from source, merge ideas from different sources, and then write the ideas in your own words.

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Other Sections (Cont)

- Always include citations for sources of ideas even if the expression is yours.
- Redraw the line drawings. Avoid copy and paste as much as possible (e.g., for photographs).
- If there is no author, e.g., a web page, use the site name followed by a number, e.g., [wikipedia02] in the body of the text, with full title and url in the reference list.
- If mulitple papers in the same year from the same last name, use [lastnameyya] [lastnameyyb],… in the text.

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Summary

- One or more sentences about the each issue.
- Based on Table of Contents
- Key lessons

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References

- Style of References
  - Author, "Title," publisher, year, ISBN for books
  - "Title," URL [One line description] for web pages
  - Author, "Title," source, year, pp., URL for technical/magazine articles
- All authors: First-initial. Last-Name or First-Name Last-Name.
  Do not use Last-Name, First-Name or First-Initial.
- All URLs should show up as well as have a link.
  - This allows URLs to show in printed version.
- In the text point to the end
  In the end point to actual URL. Provide URL.

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References (Cont)

- Find URL for published papers
- Do not include references that are useless.
- In the text, use [Authoryy] notation, e.g., [Jain99]
  Exceptions: Standards, company documents, RFCs.
- Shorten IEEExplore URLs to include only *arnumber*, e.g., http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=4301304
- All references should consistently use the same style

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List of Acronyms

- Search the text
- Define on first use
- Avoid acronym use if used less than 5 times.
- Exception: Commonly used acronyms, e.g., CPU, I/O, IP, …

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Figures/Tables

- All figures should be numbered 1, 2, ...
- All tables should be numbered 1, 2, ...
- All figures should have a title below the figure
- All tables should have a title above the table
- All figures/tables should be referenced in the text and explained.
- Should be placed close to their references.
- To prepare figures in Windows use blank slides in PowerPoint using the font sizes to be used in the paper. Group the figure as one object. Copy and use paste special as "Enhanced Windows Metafile (EMF)" for best quality.
- Do not rescale figures in Word. Rescaling the fonts reduces their quality.
- All Figures and Tables should have a max width of 6.5" (to allow printing on a letter size paper)
- Use only .jpg, .png, .gif files for figures. No fig?.pdf

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Draft Submission

- Submit 4 hardcopies
- In the draft:
  - For the review purposes, the author's name and email should be removed. Substitute last 3 digits of your student ID.
  - Add keywords after abstract
- Spell check using MS Word
- Grammar Check: https://app.grammarly.com/
- Plagiarism check: http://www.scanmyessay.com

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Editorial

- Check all acronyms. All acronyms should be defined on first use.
- Check capitalization. No unnecessary capitalization. Headers are usually capitalized.
- Spell Check entire document.
- K=1024, k=1000. Disk storage is measured in KB, network link speeds are measured in kb. kbps not Kbps.
- Leave a space between numbers and units, e.g., 15 km not 15km.

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Editorial (Cont)

- Look for special characters
- American English: Signaling, Synchronization
- Check for continuity
- Break long paragraphs.
- Single space between paragraphs.
- The paper should be 10-15 pages long
- If you copy any figures, give reference and credit
- Use the template supplied

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Common Mistakes in Writing

- No Figures
- Figure/equations fonts too large
- Figures with no title or number or reference
- Figures/tables overflowing the margins
- References with no annotation
- References not cited
- Key pieces of information w/o references
- Tables w/o references
- Papers too short

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Common Mistakes (Cont)

- No comparison of different alternatives
- No Acronyms
- No summary
- Incorrect reference style
- No keywords

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HTML Guidelines (Cont)

- File name: index.html, fig1.gif, fig2.gif, ..., fig.ppt
- Keep PowerPoint figure source files in the same directory although these may not be referenced in the paper
- Keep the whole paper in one file "index.html" with figures in fig*n*.gif in the same directory. No Subdirectories.
- All files names should have eight characters or less for name and 3 characters or less for extension (MS/DOS compatible). The only exception is index.html

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HTML Guidelines (Cont)

- All filenames and extensions should be lowercase and contain no spaces.
- Ensure there is a link attached to
  - Every line in Table of contents
- Spread references throughout the document. Use mnemonic references with link attached to them, e.g., [Cisco99]
- Keep all internal anchor names and ids lowercase without spaces or special characters, e.g., cisco99.
- Use only id (not name):
  <A id="xx">
- All img should have alt.

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HTML Guidelines (Cont)

- Do not resize images in html. Resize them before using. Prepare figures so that there is no rescaling required. Use 12 point fonts in PowerPoint.
- Center all figures, tables, and equations
- Serially number all figures as 1, 2, … not 1.1 2.1 etc.
- Serially number all tables as 1, 2, …
- No <font ..> tags
- Check that keywords tags in the header are appropriate and exhaustive.
- Check that description in header is appropriate.

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Final Submission

- Validate your page on:
  - https://www.onlinewebcheck.com/check.php
  - https://www.freehtmlvalidator.com/
- I use CSE HTML Validator: https://www.htmlvalidator.com/
- Check URLs. Check local anchors.
- Remember to submit copies of unusual references (not available in the library or the Internet) with the final paper.

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Final Submission (Cont)

- No WinWord generated HTML
- You can use WinWord for spell checking the text
- Use plain text editor to insert HTML tags..
- Submit the final HTML version as a single zip file
- No Tar/tgz files (please submit only one zip file with all files)
- Filename: 8-or-less-letters-short-project-name.zpi
  Rename zip file to .zpi for transmission through email.
- Email .zpi file to: jain@cse.wustl.edu with the subject field of "CSE574 Project Report"

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Common Mistakes in HTML

- Used WinWord generated HTML file.
- Did not validate HTML.
- Incorrect title.
- Images resized in HTML. Height and Width attribute in the images do not match those of the actual image.
- Used HTML4
- WUSTL proxy in URLs
- Figures not scaled properly
- Table rows not aligned on top

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Checklist

	T	F	
1.	☐	☐	Are Keywords appropriate?
2.	☐	☐	Is the title satisfactory?
3.	☐	☐	Does the abstract clearly summarize the topic discussed?
4.	☐	☐	Table of Contents logically organized?
5.	☐	☐	Does introduction entice you to read the rest of the paper?
6.	☐	☐	Major ideas and topics received enough attention?
7.	☐	☐	Are individual sections and subsections of uniform length?
8.	☐	☐	Are references correctly formatted and spread throughout?
9.	☐	☐	Include author, title, dates, pages, and URL?
10.	☐	☐	Did the author follow the diamond explanation principle?
11.	☐	☐	Acronyms used properly and listed?
12.	☐	☐	Figures and Tables (Clearly labeled and professional looking, referenced in the text and explained)
13.	☐	☐	Are paragraphs of right length (not too long or too short)?
14.	☐	☐	Do the subheadings clarify the sections of the text?
15.	☐	☐	Was the material ordered in a way that was logical, clear, and easy to follow?
16.	☐	☐	Is there any portion of the text that could be omitted?
17.	☐	☐	Does the summary point out the key results?
18.	☐	☐	Copyright violations in text, figures, or tables?
19.	☐	☐	Text checked for Grammar, Spelling, Punctuation errors
20.	☐	☐	Is the quality good enough for publication in IEEE Magazine?

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Related Modules



Introduction to 5G,
http://www.cse.wustl.edu/~jain/cse574-16/j_195g.htm

Low Power WAN Protocols for IoT,
http://www.cse.wustl.edu/~jain/cse574-16/j_14ahl.htm





Introduction to Vehicular Wireless Networks,
http://www.cse.wustl.edu/~jain/cse574-16/j_08vwn.htm

Internet of Things,
http://www.cse.wustl.edu/~jain/cse574-16/j_10iot.htm





Audio/Video Recordings and Podcasts of
Professor Raj Jain's Lectures,
https://www.youtube.com/channel/UCN4-5wzNP9-ruOzQMs-8NUw

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