

# Publishing Your Research

Professor Deepa Kundur

The Edward S. Rogers Sr.  
Department of Electrical & Computer Engineering  
University of Toronto

# What is Research?

From [www.dictionary.com](http://www.dictionary.com)

👁 noun:

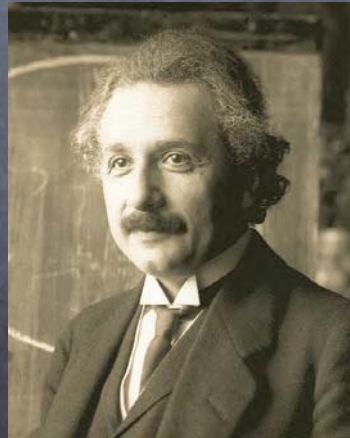
👁 **scholarly** or **scientific** investigation or inquiry.

👁 close, **careful** study.

👁 verb:

👁 To study (something) **thoroughly** so as to present in a detailed, accurate manner

"If we knew what it was we were doing, it would not be called research, would it?"



- Albert Einstein

# Common Writing Tip

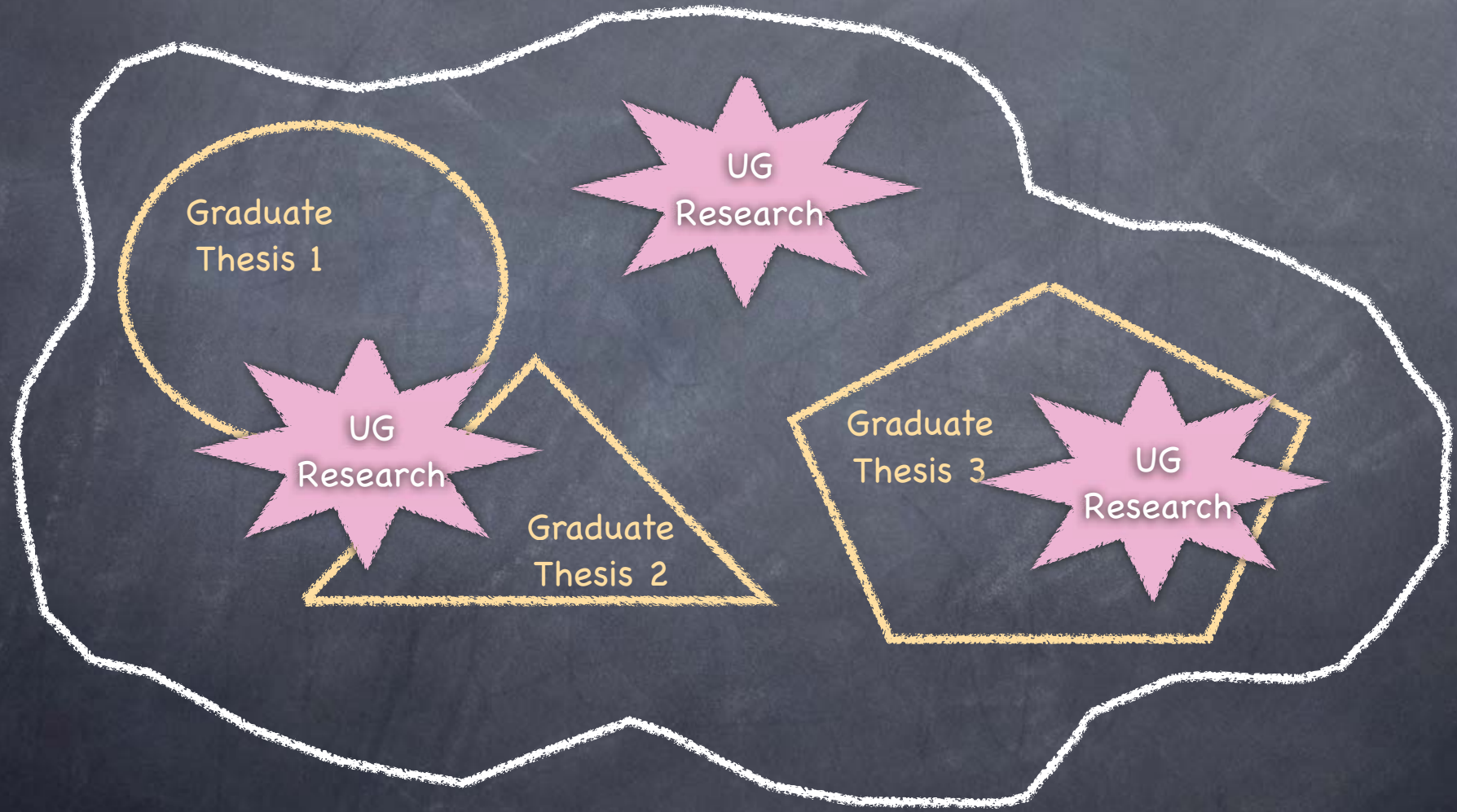
Write about something you know...

Writing a research paper for the first time can be challenging!

# Research Cycle



# Undergraduate Research



# What is Publishing?

- ① the process of **systematically** documenting and presenting your research results so that:
  - ① they can be **reproduced** by others
  - ① others can acquire **relevant knowledge quickly** (without redoing your work) to be educated in their own decisions

# Why Publish?

- ◉ societal benefit – someone can gain knowledge from your experience
- ◉ It is the “best” measure of research/ technical quality and productivity.
- ◉ The process of writing will raise questions that improve the research.



# Why Publish as a Student?

- The experience of writing a paper is invaluable for your professional development.
- opens doors - looks great on a resume or CV

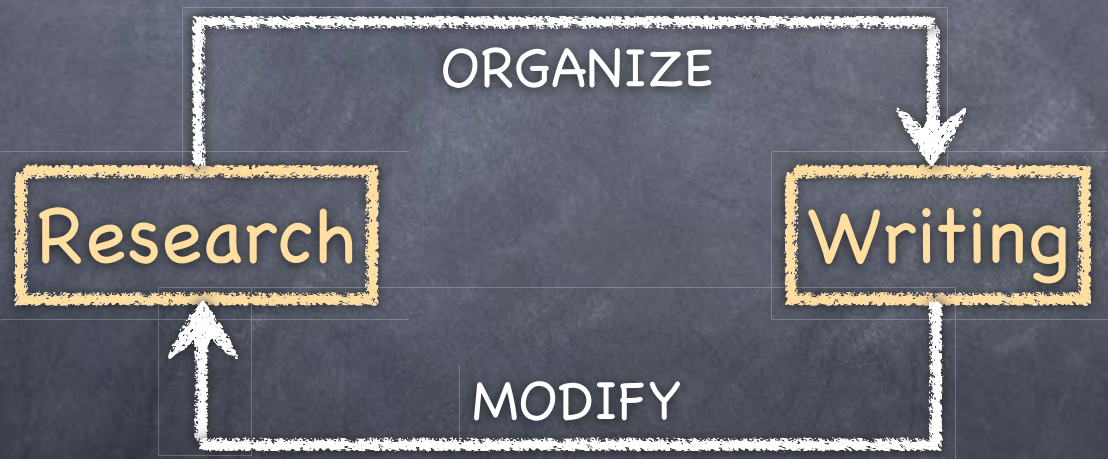
# Common Types of Publications in STEM

## Venerable

- Technical Reports
- Theses
- Note: Blogs and documents on personal webpages are not considered official
- Presentation Abstracts
- Workshop Papers
- Conference Papers
- Journal Papers
- Magazines

# When to Think About Publishing

SOON AFTER YOU  
START GETTING  
RESULTS!



# STAGES OF DEVELOPING A PAPER

# STAGES OF DEVELOPING A PAPER

## Before You Start Writing

(and after a good portion of research is done)

# Learn Your Writing Tools

- Learn a good graphics package.
- Learn a good word processing package.
  - preferred by researchers in your field
  - available for your computer (Windows, MAC OS X, Linux)

# Graphics

- simple, clean, crisp
- text is large enough
- only relevant details
- ports well to grayscale
- caption!

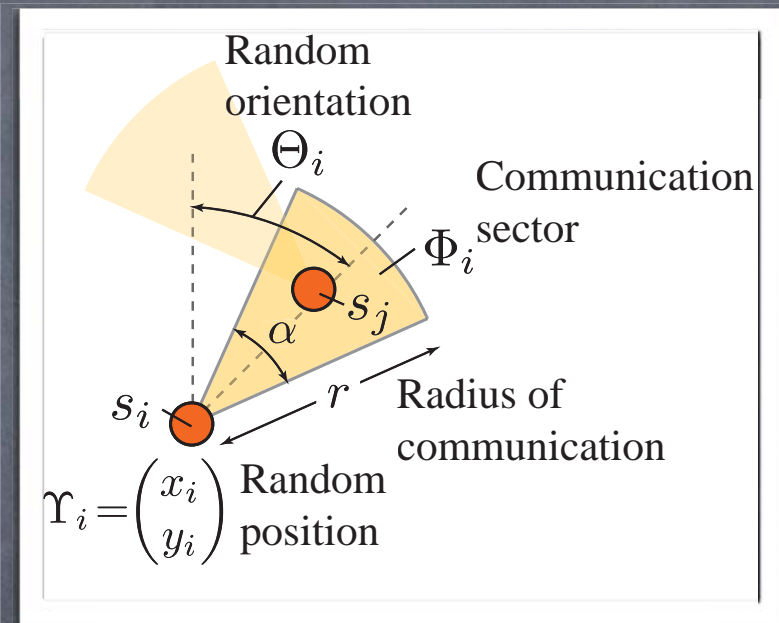


Fig 1. A DOMCN node. Directionality of data transmission at the physical layer results in unidirectional links

# Graphics

- simple, clean, crisp
- text is large enough
- only relevant details
- ports well to grayscale
- caption!

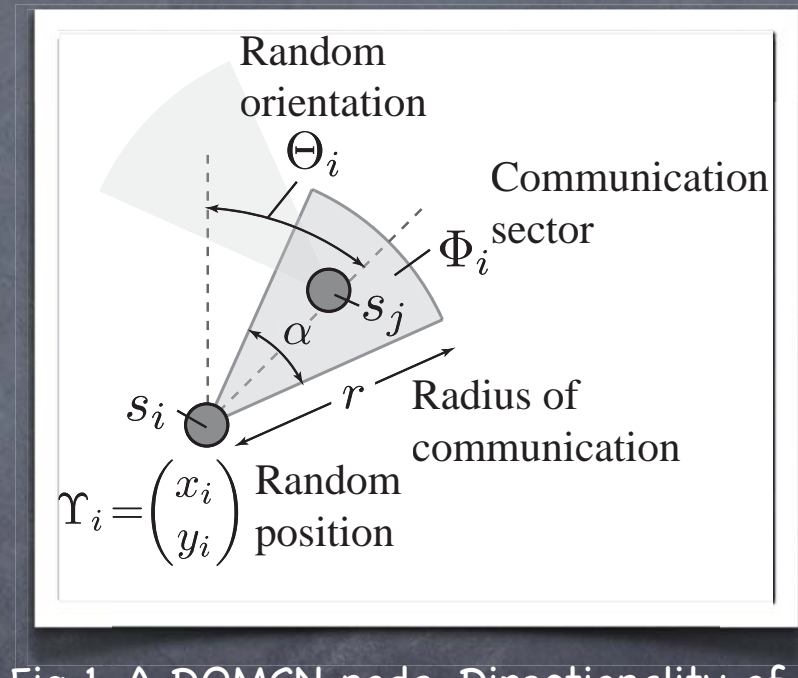


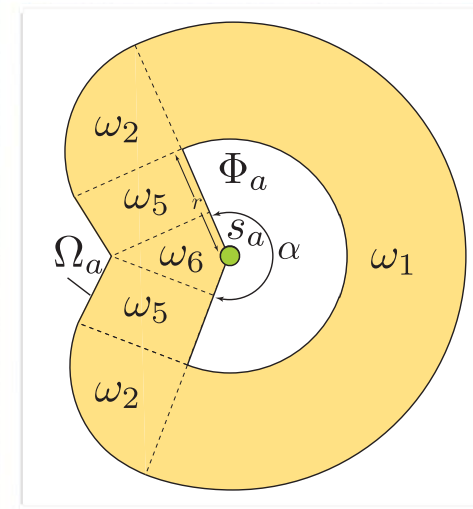
Fig 1. A DOMCN node. Directionality of data transmission at the physical layer results in unidirectional links



# Word Processing

- should be able to handle equations easily
- should be able to import different graphics file types
- should export in a common format, e.g., PDF

$$y(t) = \begin{cases} \int_{-\infty}^t x(\tau) d\tau & \text{for } t < 0 \\ \frac{dx(t)}{dt} & \text{for } t \geq 0 \end{cases}$$



# Organization and Gathering

- Do **more** background reading.
- Be proactive in finding references:
  - to fill in your gaps in knowledge
  - use as examples for your own paper
  - help put your work in perspective

- The value of art is related, in part, to its place in history ...



Red, Orange, Tan, and Purple  
by Mark Rothko  
1949

# What is New?

- List all the things that make what you are doing novel. Examples:
  - your specific problem/application is new
  - your results/comparisons are new
  - you are bridging two things for the first time
  - you are the first to implement/build/test something

# What is New?

- If nothing seems new ...
  - ask your mentor what is novel
  - perhaps you are verifying/reproducing someone else's work - this is also very important

# Q: Do I have Enough for a Paper?

• A: Depends

- on research area
  - on publication you intend to submit to
- As an undergraduate student, you must ask your research mentors (professor, graduate student, etc.).

# Scout Possible Venues

- Cardinal rule of writing: know your audience
- Get with your faculty and/or graduate student advisor and discuss any target publications.
- Deadlines are set usually six months to a year in advance.
- Requests for papers are issued in a Call for Papers (acronym: CFP)



**CALL FOR PAPERS**  
**9<sup>th</sup> ACM Multimedia and Security Workshop**  
**Dallas, Texas, September 20–21, 2007**



**ACM Multimedia and Security Workshop**  
 September 20–21, 2007

**Organizing Committee**

**General Chairs**

Deepa Kundur  
*Texas A&M University*  
 Balakrishnan Prabhakaran  
*University of Texas, Dallas*

**Program Chairs**

Jana Dittmann  
*Otto-von-Guericke University*  
 Magdeburg, Germany  
 Jessica Fridrich  
*SUNY Binghamton, USA*

**Local Arrangement Chair and Treasurer**

Xiaohu Guo  
*University of Texas, Dallas*

**Program Committee**

Mauro Barni  
 Ahmet M. Eskicioglu  
 Teddy Furon  
 Stefan Katzenbeisser  
 Inald Lagendijk  
 Heung-Kyo Lee  
 B. S. Manjunath  
 Nasir Memon  
 Fernando Perez-Gonzalez  
 Claus Viehauer  
 Sviatoslav Voloshynovskiy  
 Min Wu

**Time Schedule**

Submissions start: March 1, 2007  
 Submissions end: May 10, 2007  
 Authors notified: June 28, 2007  
 Camera ready by: July 20, 2007  
 Workshop: September 20-21, 2007

**Workshop Website:**

<http://wcl3.tamu.edu/mmsec07/>

The 9th ACM Multimedia and Security Workshop will be held in Dallas, Texas. Its objective is to identify key future research issues in the areas of multimedia security and protection, robust media transmission, manipulation and recognition, and the detection of hidden communications. We expect the workshop to motivate this research and to establish fruitful relationships with the key actors from academia, industry, and government in the US and European and Asian countries. It will consist of invited papers, full papers, short papers, and possibly a rump or a panel session. This event continues a successful series of workshops started in 1998.

**OBJECTIVES**

- Discussion of emerging technologies in digital multimedia authentication, encryption, identification, fingerprinting, steganalysis, and secure multimedia networking
- Identification of critical high impact research problems addressing specified deficiencies in the field of secure multimedia distribution and consumption
- Formulation of target applications of identified technologies in both the commercial, civilian, and military sectors
- Exposition of legal and business issues connected to multimedia security

**SCOPE AND PAPERS**

Papers addressing issues of secure multimedia processing, transmission, and consumption are welcomed. Both theoretical concepts dealing with fundamental performance issues and application-oriented contributions within this scope will be considered. Software and hardware demos are highly encouraged.

Topics include but are not limited to:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>▪ Multimedia watermarking, fingerprinting and identification</li> <li>▪ Multimedia authentication and encryption</li> <li>▪ Signal processing in the encrypted domain</li> <li>▪ Steganography and steganalysis</li> <li>▪ Digital media forensics</li> <li>▪ Data hiding in biometrics</li> <li>▪ Practical systems exhibiting data hiding characteristics</li> </ul> | <ul style="list-style-type: none"> <li>▪ Multimedia network protection, privacy and security</li> <li>▪ Secure multimedia system design, presentation and computing</li> <li>▪ Security evaluation benchmarks</li> <li>▪ Emerging applications</li> <li>▪ Legal and business issues as well as their interaction with technological development</li> </ul> |
|---|--|

In particular, this call for papers requests full papers with a high degree of innovations as well as short papers with interesting improvements of prior art or position papers on new ideas and research directions. Full papers should be 6–12 pages long, short papers 4–6 pages long (ACM format <http://www.acm.org/sigs/pubs/proceed/template.html>). Accepted papers will be published in the ACM workshop proceedings.

**Extended Submission Deadline May 17, 2007**

Authors are invited to submit, online, full or short papers by indicating the type of the paper (full/short) in electronic format (PDF or PostScript) to <https://msrcmt.research.microsoft.com/ACM2007>. Create a new user account, login, and follow the submission instructions.

**Example CFP**

description of area

specific topics

deadlines

how to submit



# Set a Timeframe

- ① Your timeline depends on:
  - ① scope of your paper
  - ① CFP deadlines
  - ① other researchers you are working with

# Set a Timeframe

- Your timeline should include:
  - deadlines for significant research accomplishments
  - dates for collaborative tasks
  - deadlines for paper drafts

# Example Timeline

- Project: Developing an algorithm for image restoration.



# Example Timeline

- 2/1/09-Obtain data.
- 3/1/09-Finish simulations.
- 3/10/09-Present results to research group.
- 4/1/09-Modify algorithm.
- 5/1/09-Complete simulations.
- 5/15/09-Finish outstanding issues.
- 6/2/09-Submit results to mentor.
- 6/15/09-Complete conference paper outline.
- 6/30/09-Flesh out paper.
- 7/10/09-Complete first draft.
- 7/31/09-Complete second draft.
- 8/15/09-Complete final revisions.
- 8/20/09-Submit paper.
- 1/15/09-If accepted, make final changes and submit "camera ready" paper.

# Common Pitfalls

- ① Not properly understanding the tasks - don't make assumptions.
- ① Not completing tasks on time.
- ① Not completing tasks to sufficient quality.
- ① Know yourself and how your work!

# STAGES OF DEVELOPING A PAPER

## Outline Your Content

## Example

1. Abstract
2. Introduction
3. Problem Formulation and Assumptions
4. Proposed Solution
5. Experimental Results
6. Analysis and Discussion
7. Conclusions

BASIC SKELETON;  
NEED TO FILL IN AT  
SUB-SECTION AND  
PARAGRAPH LEVEL

## Example

1. Abstract

2. Introduction

3. Problem Formulation and Assumptions

4. Proposed Solution

5. Experimental Results

6. Analysis and Discussion

7. Conclusions

BASIC SKELETON;  
NEED TO FILL IN AT  
SUB-SECTION AND  
PARAGRAPH LEVEL



GOOD PLACE  
TO START



## Example

BASIC SKELETON;  
NEED TO FILL IN AT  
SUB-SECTION AND  
PARAGRAPH LEVEL

1. Abstract

2. Introduction

3. Problem Formulation and Assumptions

EASIEST  
TO DO

4. Proposed Solution

5. Experimental Results

6. Analysis and Discussion

7. Conclusions

## Example

BASIC SKELETON;  
NEED TO FILL IN AT  
SUB-SECTION AND  
PARAGRAPH LEVEL

1. Abstract ← BEST TO  
DO LAST

2. Introduction ←

3. Problem Formulation and Assumptions

4. Proposed Solution

5. Experimental Results

6. Analysis and Discussion

7. Conclusions

## Example - 5.Experimental Results

1. empirical results
  - 1.1. software details and assumptions
  - 1.2. simulation study A
  - 1.3. simulation study B
  - 1.4. simulation study C
2. hardware implementation
  - 2.1. hardware details
  - 2.2. testing platform
  - 2.3. hardware test results
3. summary of experimental results leading to conclusions

## Example - 2.Introduction

- broad introductory paragraph
- problem statement paragraph
- summary of past related research
- paragraph of proposed solution and what is novel
- contributions of research
- summary of rest of paper

# Select a Title

- Should be succinct, but not vague.
- Look at other papers for examples.

# Title

- Bad Examples:

- “Image Restoration” – too vague

- “The Best Image Restoration Algorithm” – too arrogant

- Good Examples:

- “On the use of Recursive Inverse Filtering for Blind Image Restoration”

# Authorship

- The order of the author list is dependent on the culture in a particular research field.
- Ask what is appropriate for your paper.
- Possibilities:
  - order based on “contribution”
  - alphabetical

# STAGES OF DEVELOPING A PAPER

Fill in the Details



# Detailed Outline

- detail sections, subsections, and paragraphs
- don't forget to add figures and tables where appropriate
- for each paragraph not only summarize, but state its purpose; e.g.,
  - introduce the assumptions of the paper
  - clarify the contribution of the research
  - explain the simulation parameters

# Detailed Outline

- ① Using the outline, write out the paper paragraph by paragraph.
- ① Tips:
  - ① State things as **simply** as possible.
  - ① Be as **explicit** and **exact** as possible.
  - ① Be yourself, and **objective** and **formal**.

# Detailed Outline

- Upon completion, you will have your first draft!
- Have someone else (e.g., friend) read it to find typos and suggest changes.
- Make backups!

# STAGES OF DEVELOPING A PAPER

## Get Advisor Feedback

# Submit for Feedback

- ① Provide softcopy and/or hardcopy to your faculty mentor.
- ① Leave margins and double-space for room for comments.

# Feedback

- ① Don't take things personally.
- ① Ask for clarification.
- ① Make all the suggested changes and any additional changes needed.
- ① Submit again for feedback.

# STAGES OF DEVELOPING A PAPER

Polish, Polish, Polish

# Iterate

- Make additional changes.
- Iterate if needed.
  - Draft 2, Draft 3, ...



# Final Checklist

- ✓ spell check passed
- ✓ all variables defined
- ✓ figure and table captions complete
- ✓ word/page limitations pass
- ✓ font/margins restrictions pass
- ✓ special symbols/figures render/print properly
- ✓ cover letter provided if needed

# STAGES OF DEVELOPING A PAPER

Submit Your Paper

# Most Likely Online

- Make sure that you have all of the following information on hand:
  - full name, title, email addresses, phone number and fax and any other relevant identifying info for each author
  - address of the Department you faculty mentor is in
  - text version of title and abstract to cut and paste
  - final softcopy draft of manuscript

# STAGES OF DEVELOPING A PAPER

## Review Process

# STEM Review Process

- ◉ involves obtaining feedback from relevant technical specialists
- ◉ number of reviewers usually range from two to five and are often professors, research assistants, industrial researchers or graduate students
- ◉ review process usually takes anywhere from six weeks to six months (or even more!)

# Review Process Results

- ◉ individual assigned to deciding the outcome is often known as an **associate editor** or **track chair**
- ◉ Possible results (depends on publication):
  - ◉ administrative **REJECT**, resubmit elsewhere
  - ◉ **REJECT**
  - ◉ **REVISE** and resubmit after major changes
  - ◉ **ACCEPT** with minor changes
  - ◉ **ACCEPT**

# STAGES OF DEVELOPING A PAPER

Revise

# Revision Process

- Assuming you have an accept, accept with minor changes or revise and resubmit ...
  - There is a time frame by which you must complete revisions.
  - Work with your mentor to **interpret** the feedback.
  - Make **all** the changes suggested if they make sense; you may have to write a **rebuttal**.



# STAGES OF DEVELOPING A PAPER

## Camera-Ready Version

# Upon Acceptance ...

- You will have to make sure that your paper employs the necessary style files and format requirements.
  - MS Word Templates
  - LaTeX template files
- Go through checklist ...

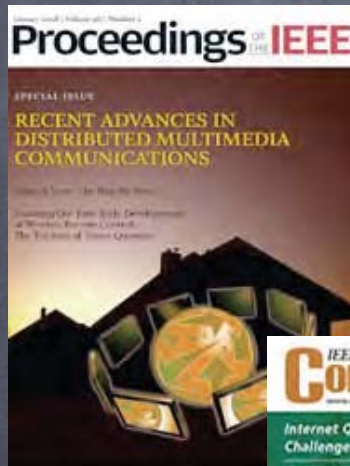
# Final Checklist

- ✓ spell check passed
- ✓ all variables defined
- ✓ figure and table captions complete
- ✓ word/page limitations pass
- ✓ font/margins restrictions pass
- ✓ special symbols/figures render/print properly
- ✓ cover letter provided if needed

# STAGES OF DEVELOPING A PAPER

## Publication

# Be Proud!



# Be Prepared

- Your publication may result in requests for further clarification.
- Good opportunity to make contacts and start a research reputation.

# DON'Ts of STEM Publishing

# Don't think you've finished

- Your papers are a type of **academic legacy** and you may be approached in the future regarding it.
- It is good **courtesy** to respond to questions by answering or referring them to someone who is able to, is continuing the research, or has more time.



# Don't think you've finished

- Publishing often occurs after a student/researcher has left the research position, so it can often take a couple of months/years to **wrap things up**.
- It is often an **unwritten rule** that someone will help out with clarifications and support until the final publications are out.

# Don't Plagiarize

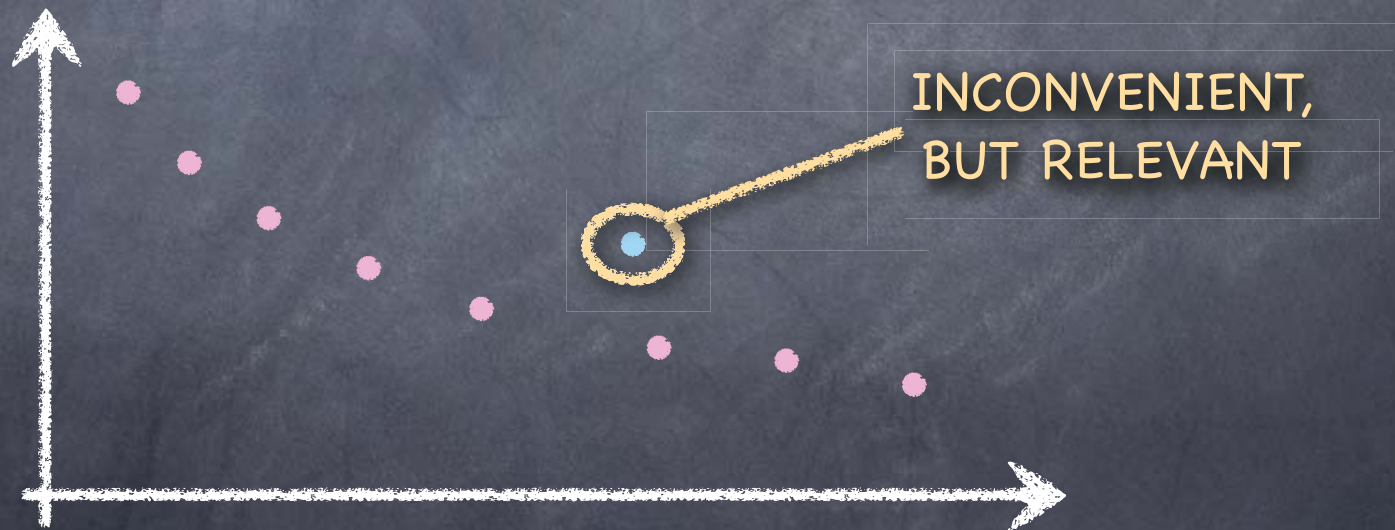
- From [www.dictionary.com](http://www.dictionary.com)
  - the unauthorized use or **close imitation** of the **language** and **thoughts** of another author and the representation of them as one's own **original** work.

# Don't Plagiarize

- ◉ It has become increasingly easy for people to cut and paste from electronic sources.
- ◉ Put things in your own words and in your own context.
- ◉ It helps to know how what you are doing is different/novel from existing research.

# Don't Change Results

- Never, never, never change results; you could be masking the real discovery!



# Final Remarks

- ① Your publications are in some sense your legacy; take them seriously.
- ① Often the process of writing takes as long as the research!
- ① Anyone can become an excellent writer with practice.