Publishing Your Research

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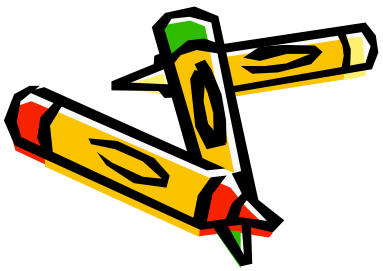
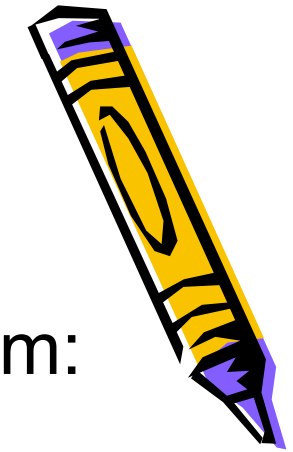
Topics for this session

- Importance of publishing your research
- Avenues for publication
- What is required for different types of publications
- Ethical issues about publishing

^ and other

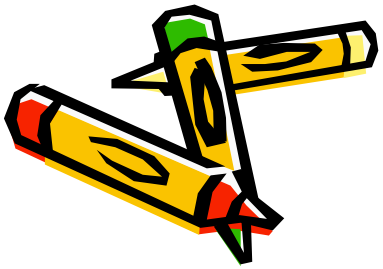


Credits



Bits of wisdom gleaned/borrowed/stolen from:

- *Building a Research Career*, Francine Berman, UCSD
- *How to Have a Good Career in Computer Science*, Stefan Savage, UCSD
- *How to Have a Bad Career in Research/Academia*, David Patterson, UCB
- *Mapping out a Research Agenda*, Barbara Ryder, Rutgers
- CRAW mentoring workshops

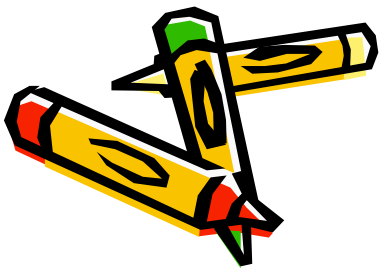


Plus some personal observations

Research is Its Own Reward

"Research is both an art and a science: It requires you to know your subject and to know yourself, to have knowledge of the mechanics of solving a problem, as well as a feel for what is promising and what is not.

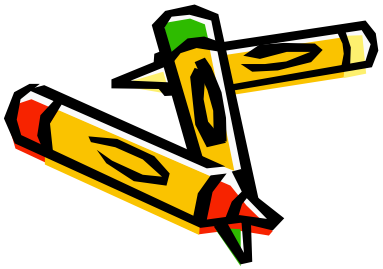
For many people, the experience of conducting research provides an opportunity to grow not only as a researcher, but as a person, in a deep and substantive way, and is well worth the commitment and effort."



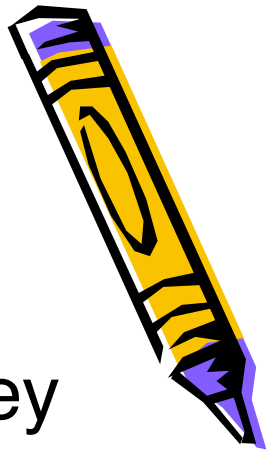
-- Building a Research Career, Francine Berman
www.cra.org/Activities/craw/projects/mentoring/

Publishing: A Critical (!) Phase of Research

- Discovery is unbridled fun
- Writing (and speaking!)
  - Are eating your vegetables:
    - reviewing, rehashing, reworking, reconstructing,…
  - Are essential for your growth as a researcher
    - for dissemination & vetting of your ideas
    - for others to corroborate, refine, extend, build on your findings (to have impact!)
  - Can bring tremendous (bridled) satisfaction:
    - others appreciate what you have done
    - to explain is to understand



Publication Types

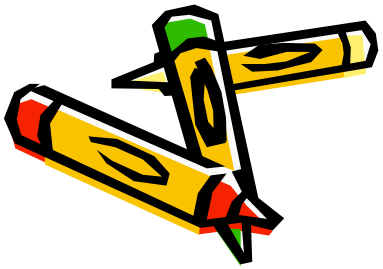


Different foci:

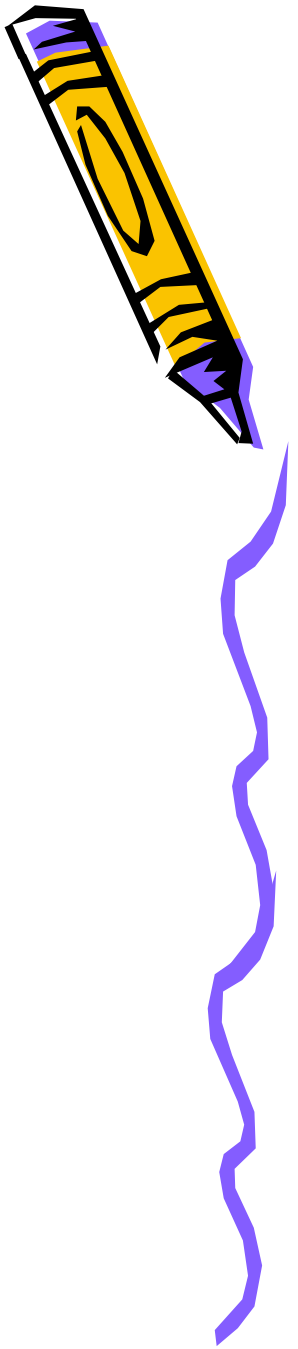
- Research
- Pedagogy
- Retrospective, survey
- Expert opinion piece

Different venues:

- Technical reports
- Workshops
- Conferences
- Journals
- News bulletins
- Public press
- Trade magazines
- WWW



Technical Reports



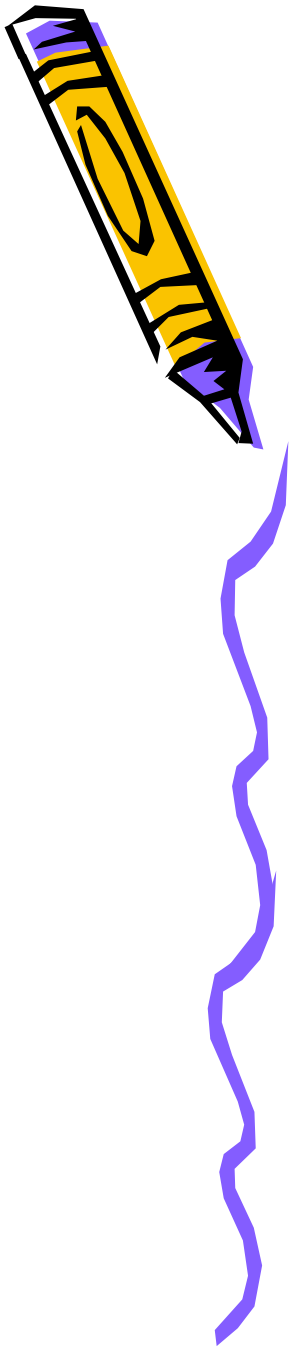
Venue characteristics:

- self-publishing on web page
- no page limit, no deadlines
- not archival, not refereed, limited visibility

What to publish:

- preliminary results for focused audience
- details of theorems, experiments, data analysis, algorithms, etc.
- pre-prints for early citation

Workshops

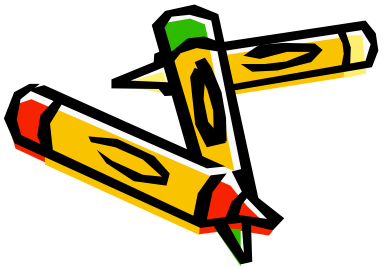


Venue characteristics:

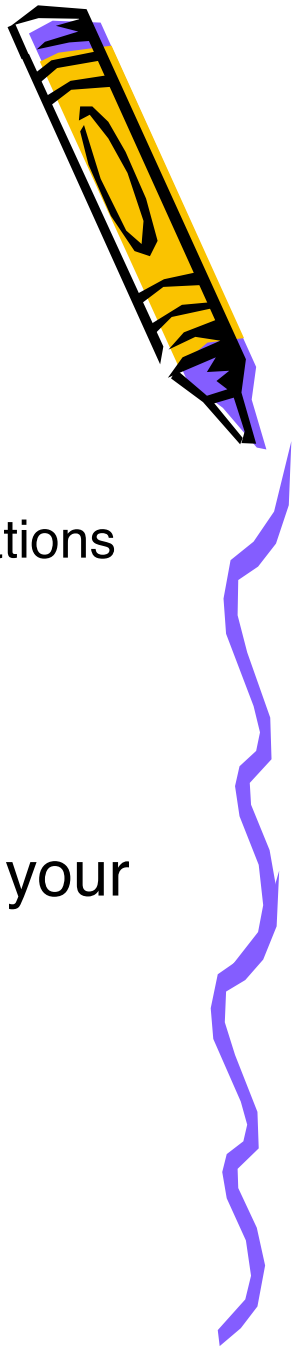
- by invitation or lightly reviewed submission
- may or may not include oral presentation
- may or may not produce proceedings/report, etc.
- relatively narrow topic and audience
- often collocated with bigger/broader venues

What to publish:

- preliminary ideas/results
- research summary/short paper (2–6 pages)
- position paper



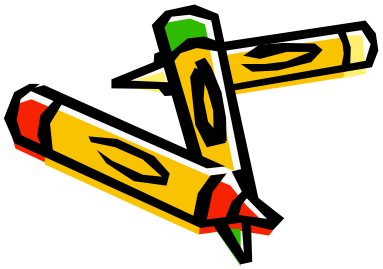
Networking



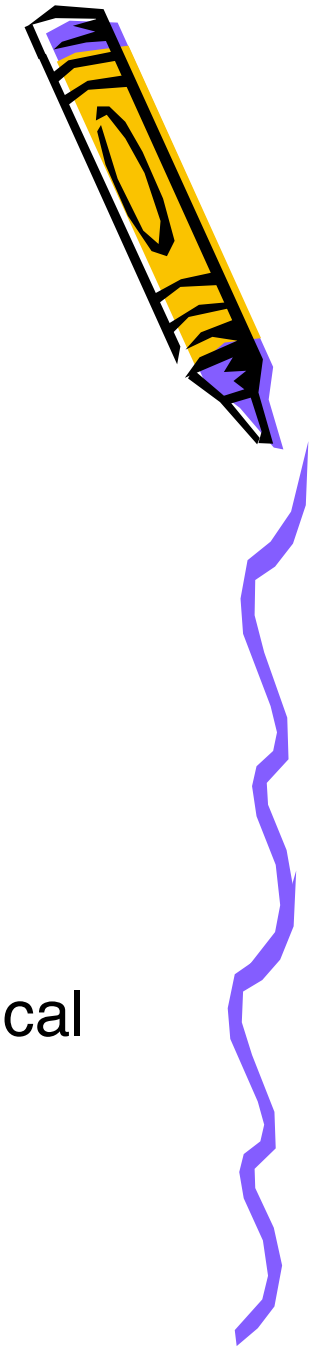
- *It's not who you know, it's who knows you*

- **Myth:** your work speaks for itself (and you)
  - Little Reality #1: most people haven't read your publications (feel lucky if they skimmed it)
  - Little Reality #2: many people attending your talk were gossiping in the hall or didn't listen

- **Reality**: it is **your** responsibility to be "known" to your community, not their responsibility to know you
  - Your advisor, friends and colleagues can help



Conferences

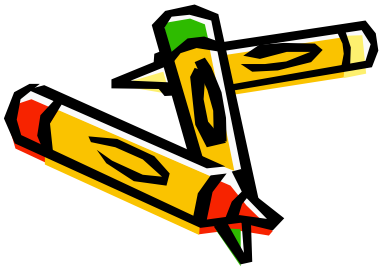


Venue characteristics:

- non-iterative, peer reviewed,
- strict page limit (6 –15 pages) and deadline
- oral or poster presentation
- high variability in selectivity and visibility
- publish proceedings and may invite best papers (after expansion) for journal submission

What to publish:

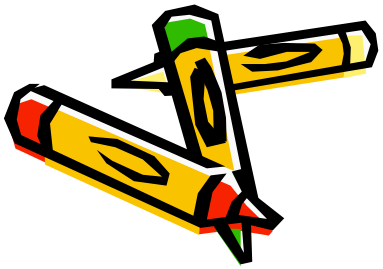
- semi-developed to mature research or pedagogical results (depends on conference)



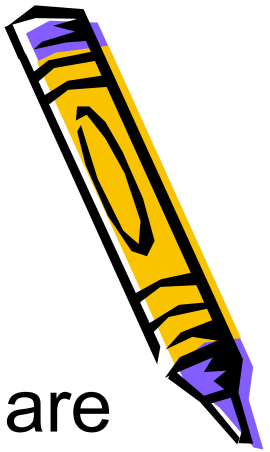
Not All Conferences are Equal

Examples in just one area (Softw. Eng.)

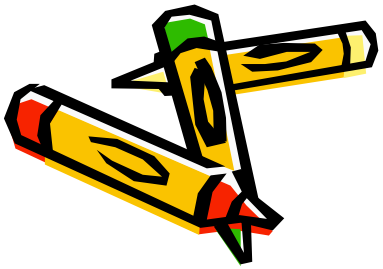
- *International Conf. on Software Engineering (ICSE)*
- *Foundations of Software Engineering (FSE)*
- *Prog. Lang. Design & Implementation (PLDI)*
- *European Softw. Engr. Conf. (ESEC)*
- *Internatl. Symp. Softw. Testing & Analysis (ISSTA)*
- *OO Prog. Systems, Lang. & Applications (OOPSLA)*
- *Automated Software Engineering (ASE)*
- *Tools & Algos. for Constr. & Anal. of Systems (TACAS)*
- *…*



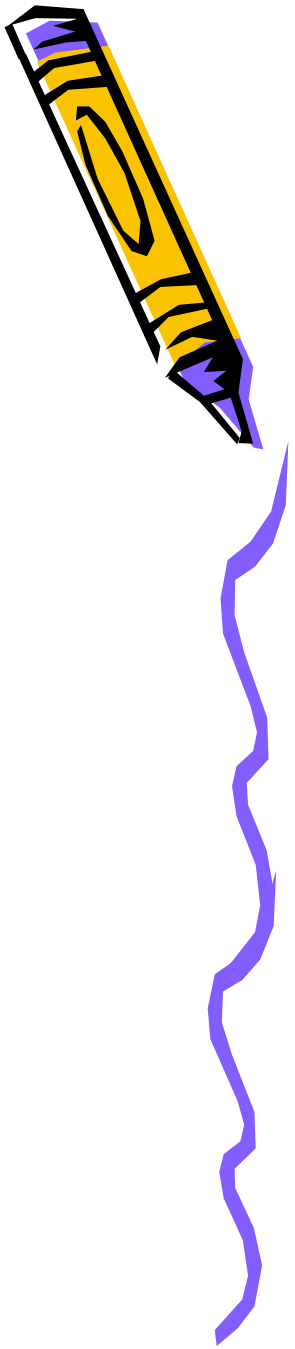
Considerations for Workshop and Conference Venues



- Workshops and less selective conferences are good for:
  - preliminary ideas in need of feedback
  - learning about a research area and networking
- But look for well regarded venues
  - ask advice from a more senior researcher
  - see who is on the program committee
  - look over past proceedings
  - see where your peers publish



Journals

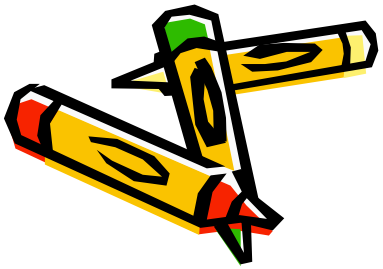


Venue characteristics:

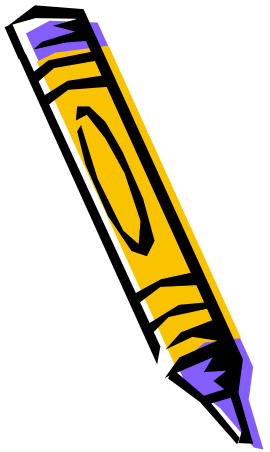
- iterative, peer reviewed
- no (strict) page limits
- no deadlines (except for special issues)
- highly variable in selectivity and visibility
- may or may not be archival

What to publish:

- depending on journal: semi-developed to mature research or pedagogical results
- comprehensive description of a body of work



Not All Journals are Equal



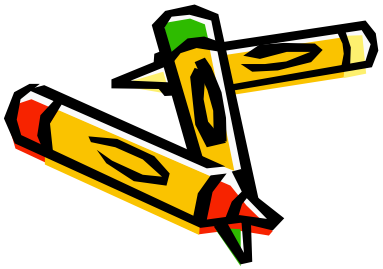
Example for one area (Sftw. Eng.)

Preferred journals

- *ACM Transactions on Software Engineering and Methodology*
- *IEEE Transactions on Software Engineering*

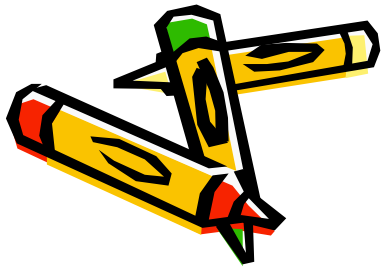
Many other reputable journals

- *Software: Practice & Experience*
- *Empirical Software Engineering*
- *Journal of Software Maintenance*
- *Journal of Automated Software Engineering*
- *…*

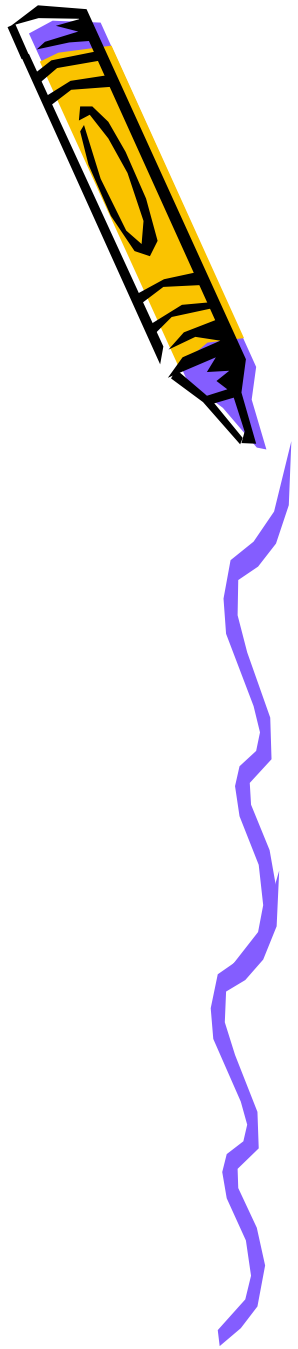


Conferences v.s. Journals

Timely publication & feedback	Describe results in more depth
Expose leading re-searchers to your work	Receive higher quality feedback
Widely available in digital libraries	Evidence of maturity (esp. for P&T)
Prestigious, visible	Not as “hit or miss”



Key Issues for Publishing

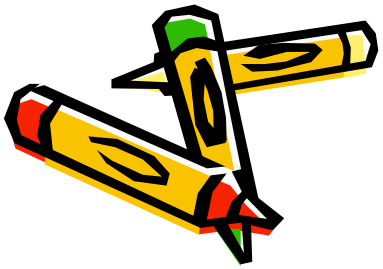


Myth: Great research speaks for itself

Reality:

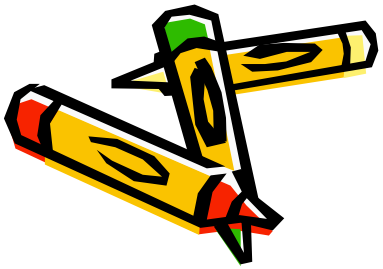
- you need a compelling story (terribly underrated in importance)
- clear presentation is necessary (not sufficient)

quality >> quantity



Kinds of Papers/Stories

- Opens up new area
- Provides unifying framework
- Resolves long-standing question
- Thoroughly explores an area
- Contradicts existing knowledge
- Experimentally validates theory
- Produces an ambitious system
- Provides empirical data
- Derives superior algorithms
- Develops a new methodology
- Develops a new tool
- Produces a negative result



(Allen Newell's kinds of PhD theses)

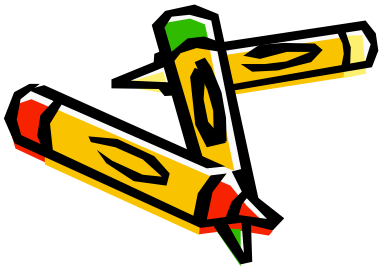
A Good Story Starts with a Great Introduction

Grab a reader's interest in the first page/minute

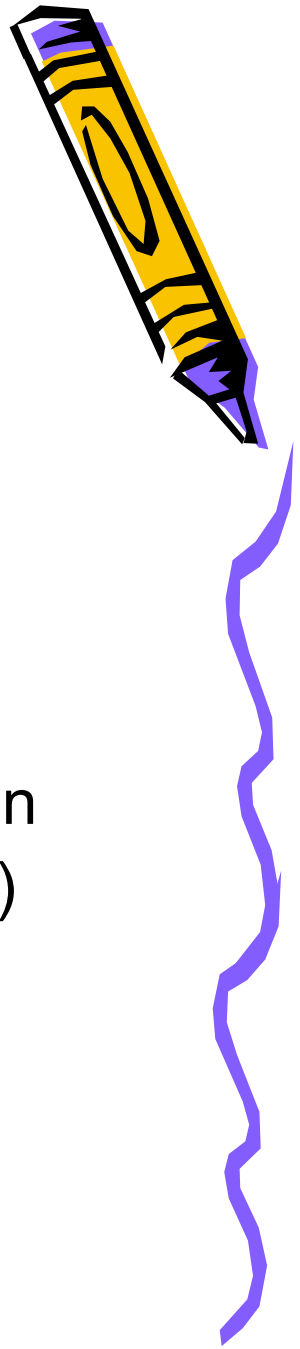
- set the context
- motivate and explain how to look at the problem
- foreshadow most impressive result

Specifically:

- why should everyone care about the problem?
- what is done currently?
- what is your key insight?
- how much better are you making it?



Presentation is Critical



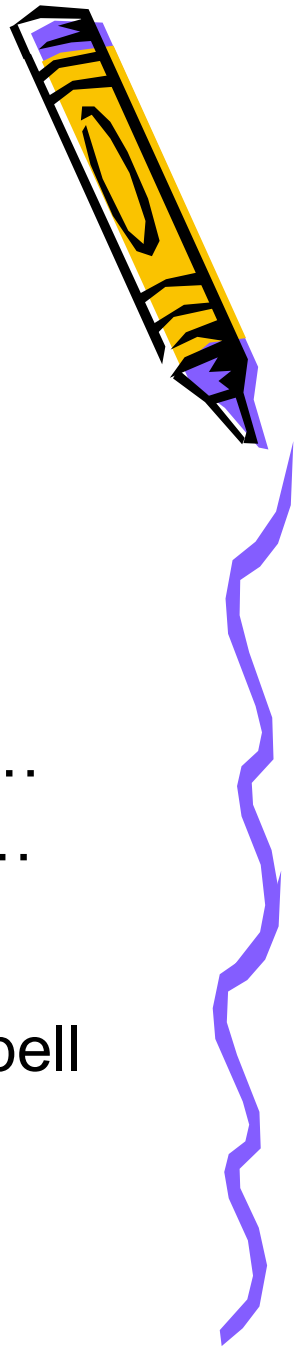
Organization:

- beginning: necessary background, roadmap
- middle: unfold logical progression of ideas
- ending: summary, conclusions, future work

Make your ideas understandable

- use standard, clearly defined terminology/notation
- provide intuition to explain formulas (code, algos)
- use clarifying examples
- illustrate ideas in figures
- use acronyms sparingly (judiciously)

Writing Affects Presentation



Use understandable, interesting prose

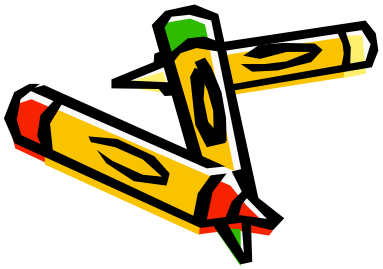
- *The Elements of Style*,
  Wm. Strunk jr. and E. B. White
- *Bugs in Writing*, Lynn Dupre

Create multiple drafts

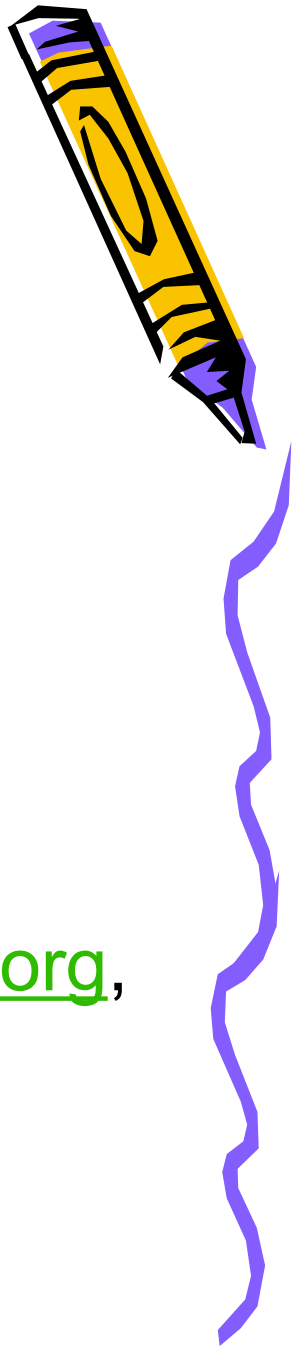
- write, critique, rewrite, critique, rewrite, critique, …
- solicit comments from other students, mentors, …

Use tools:

- dictionary, thesaurus, wikipedia, grammar and spell checkers



Signs of Good Scholarship



Clearly identify

- work you build on (provide citations!)
- contribution of the paper
- what *can* v.s. *has* been done
- limitations of your work

Compare/contrast with related work

- search: portal.acm.org, www.melvyl.cdlib.org, citeseer.ist.psu.edu
- not a related work summary!

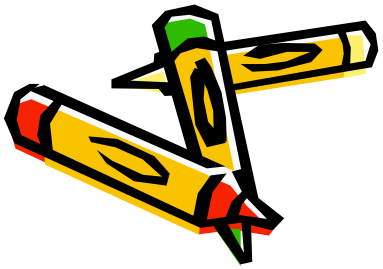
Other Issues: Authorship

Authors involved in

- framing research questions, formulating ideas, carrying out the research
- writing, proof reading, commenting on the paper
- implementing prototypes, carrying out experiments

Issues to be resolved openly (and early)

- do contributions warrant authorship?
- how will authors be ordered?



Other Issues: Rejection

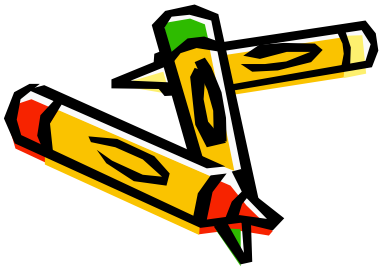
Learn from it!

- do not take criticism personally
- all reviewers' comments have *some* merit
- revise and resubmit

  (Journal: explain how you addressed comments in cover letter)

NEVER

- *simultaneously submit the same work to multiple venues!*
- *resubmit the same work to a different venue without first revising!*



Other Issues: Expanding Conference Publication(s)

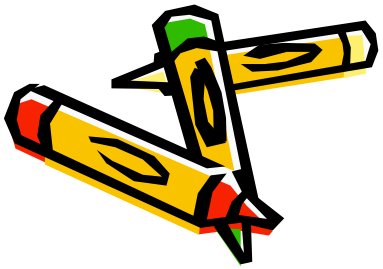
New paper must add sufficient value

- ACM pubs policy: at least 25% new *content* material

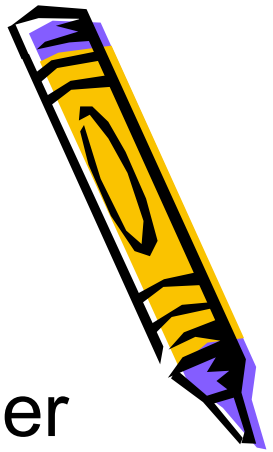
Differences must be explained in

- the new submission
- letter to the editor-in-chief/conference chair

The prior publication(s) must be cited

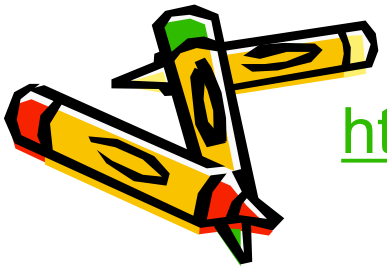


Other Issues: Plagiarism



Contexts and types:

- copying or paraphrasing portions of another author's papers with out citation
- copying *elements* (equations, illustrations) of another author's papers with out citation
- copying portions of another author's paper *with citation* but with out quotations
- self-plagiarism: copying portions of *your own* copyrighted paper with out citation (but quotations are not necessary)

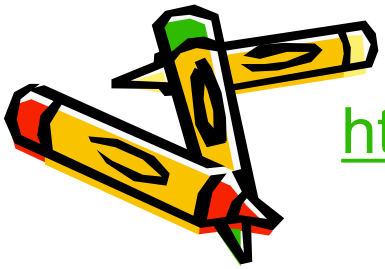


http://www.acm.org/pubs/plagiarism%20policy.html

Other Issues: Plagiarism

Consequences may include:

- formal letter of apology admitting to plagiarism
- if under review, automatic rejection of submission
- if in ACM DL, replace paper with a *Notice of Plagiarism*
- notification sent to Department Chair, Dean, employer (may result in expulsion, loss of position, etc.)



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Guard your good name!