Master Robotics Graphics and Computer Vision
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Publish or Perish

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This presentation

My Background

Researcher on Robotics

- One book and +100 papers co-authored
- +200 papers reviewed for journals and conferences
- +80 papers handled as Associate Editor of IEEE Transactions on Robotics, IROS and RSS, obtaining reviews and recommending their publication or rejection
- This presentation reflects my own experience and opinions

Acknowledgement

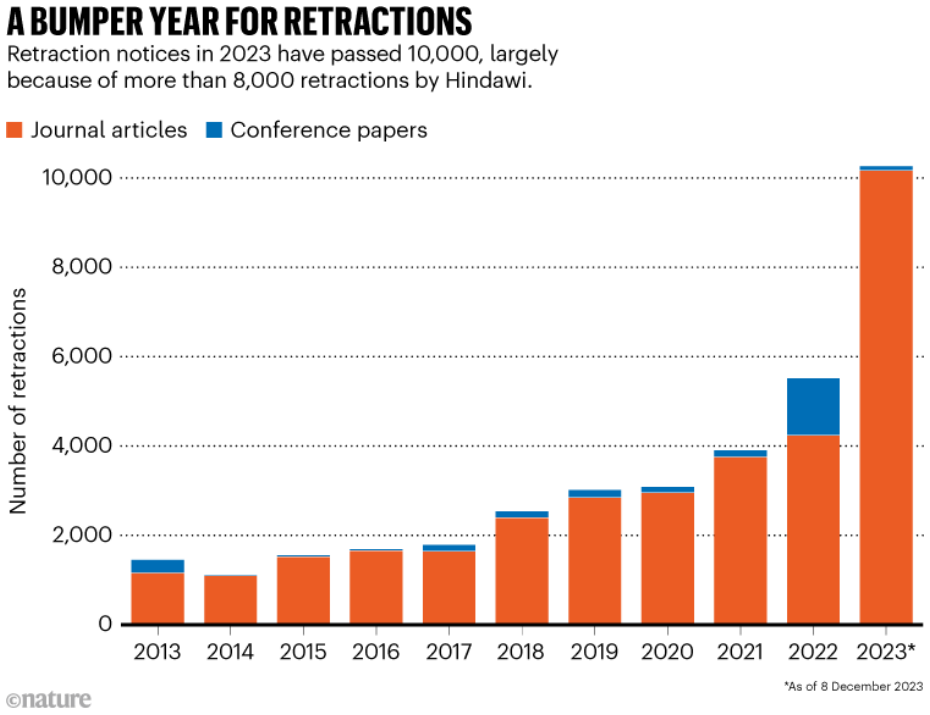
- Thanks to José Neira, Javier Mínguez, Diego Gutiérrez, Eduardo Mena and Javier Campos for their suggestions and comments on this presentation.

Publish or Perish: How?

1. The publishing process
2. How to write a paper?
3. How to write a rebuttal?
4. How to write a review?
5. Ethical Issues
   - Authorship, Plagiarism, Self-Plagiarism, Salami slicing, Conflicts of interest,...

1. The Publishing Process

- Peer review:
  - Papers evaluation by experts in the field (**reviewers** or **referees**)
  - Standard in all serious conferences and journals
  - Is a community service, only paid with recognition
- Objectives: maintain standards and provide credibility
  - Frauds or peer-review manipulation → Paper retractions (0.2%)



Peer Review Was Not Always the Standard

A. Einstein, N. Rosen, "Do Gravitational Waves Exist?" **(NO)**
submitted to *Physical Review,* June 1936

- (Editor) "Would be glad to have your reaction to the various comments and criticisms the referee has made"
- (Einstein) "Dear Sir, We (Mr. Rosen and I) had sent you our manuscript for publication and had not authorized you to show it to specialists before it is printed. I see no reason to address the - in any case - erroneous comments of your anonymous expert. On the basis of this incident, I prefer to publish the paper elsewhere. Respectfully, Albert Einstein"
  - But Einstein & Rosen were WRONG!!

A. Einstein, N. Rosen, "On Gravitational Waves" **(YES!)**
J. Franklin Inst. 223(1), pp 43-54, January 1937

- They could have found the error months earlier!!

Listening to reviewers will improve your paper!

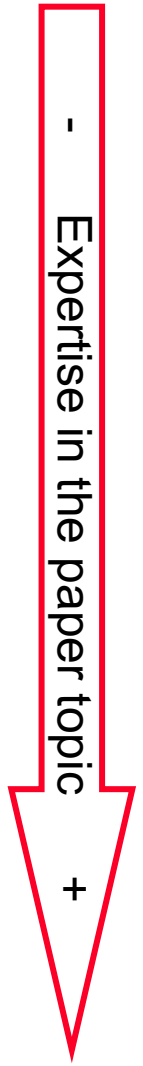
Peer Review

- Open review (a few publications)
  - The reviews are published with the paper
- Single-Blind review (the most common)
  - Reviewers are kept anonymous
- Double-Blind review (some publications)
  - Reviewers and authors are anonymous to each other
    - » Goal: avoid review bias due to author's reputation

Paper submitted to RSS 2007

The Editorial Team for Journals / Conferences

- Editor-in-chief / Program Chair
  - Organizes, receives papers and distributes them to the editors
- Editors / Program Board / Area Chairs
  - Distribute papers to the Associate Editors
  - Receive the recommendation and adopt the final decision for accepting or rejecting the paper
- Associate Editors / Program Committee members
  - Find 2-4 relevant experts willing to review each paper
  - Read the reviews and write a recommendation for accepting or rejecting the paper
- Reviewers
  - Read the paper and write a detailed review



The Decision Letter (1)

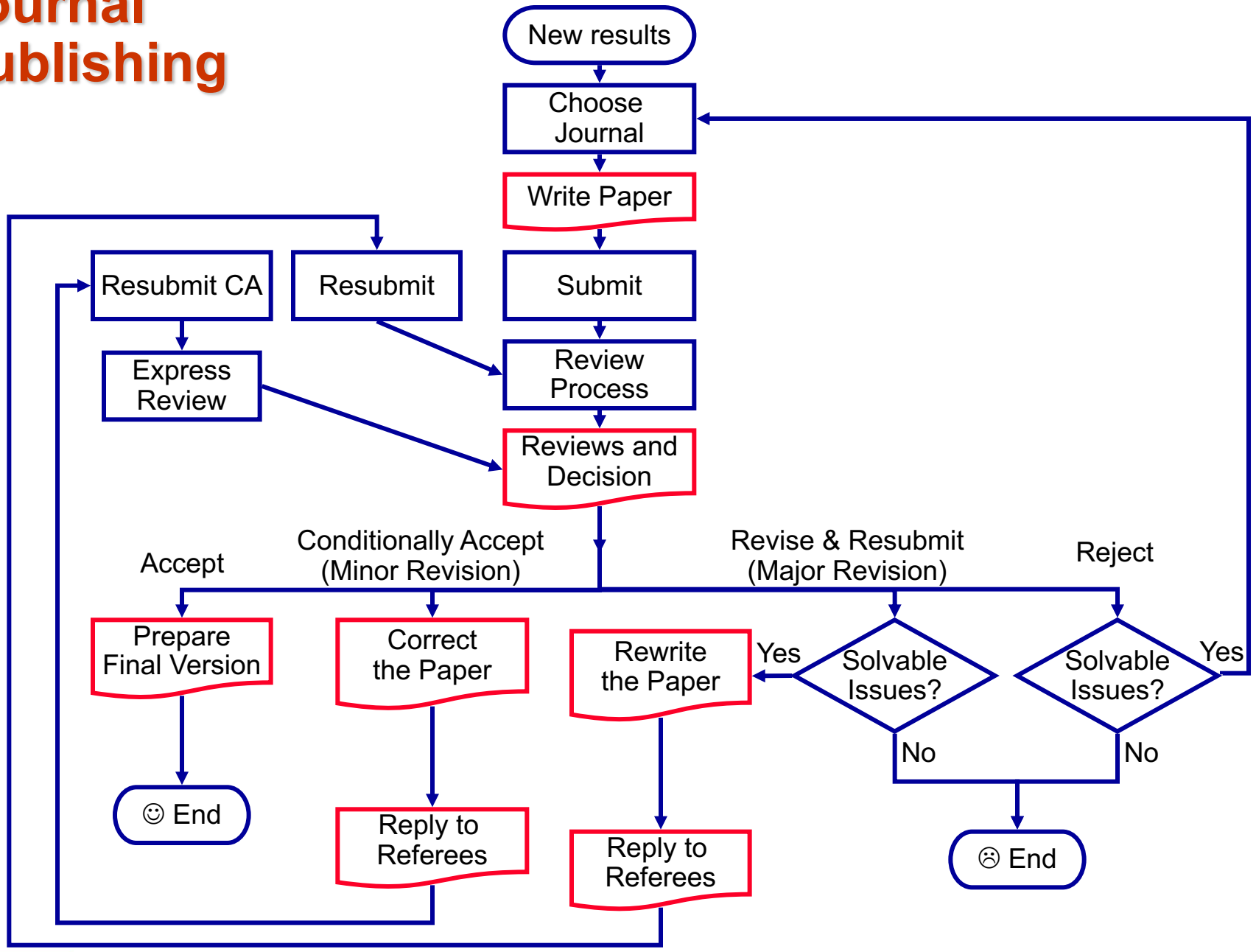
- Accept as is
  - On journals, almost never happens at the first round
- Conditionally Accept / Minor Revision (journals only)
  - Very high probability of being accepted if the authors perform the requested changes.
  - It will probably go thru an express review by the associate editor and maybe one of the previous referees.
- Revise and Resubmit / Major Revision (journals only)
  - The paper is not publishable in its current form, but could be published if the authors address the issues raised by the referees
  - Read carefully the wording, do they encourage resubmission?
  - The resubmission will go thru a new review cycle, most probably:
    - » the most critical reviewers
    - » and some fresh ones

After 1 RR, either CA or Reject

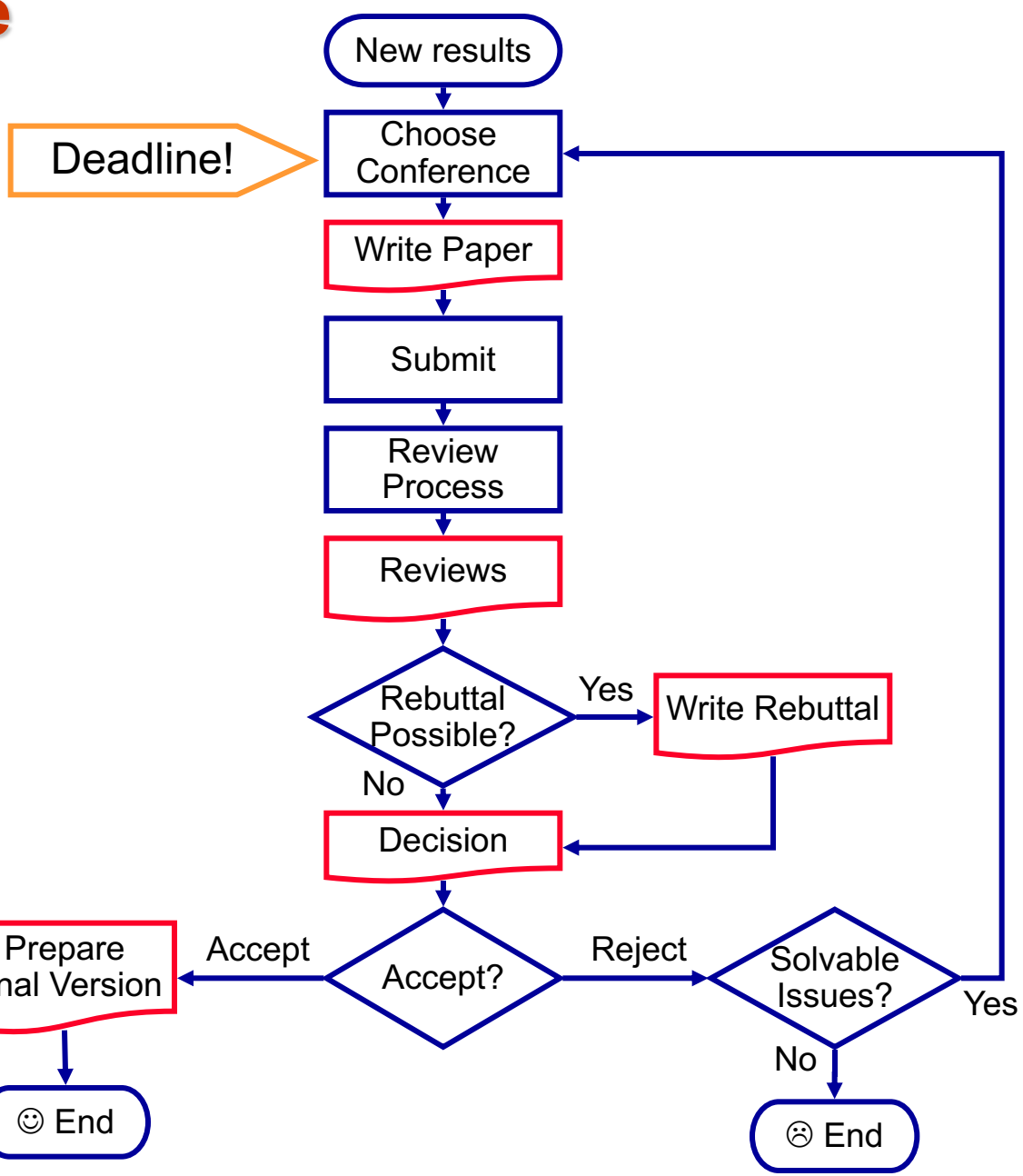
The Decision Letter (2)

- Reject
  - Don't dismay: 60% of the published papers were first rejected
  - Consider revising the paper and submitting to another place
  - Be careful: It may go to some of the same reviewers!
  - Complain to the editor? Unlikely to succeed. Try it only if you have **strong** evidence to support your complaint
- Reject without Review / Editorial Reject
  - The paper is not appropriate or clearly bellow the standard for that journal or conference and was not sent out for reviews
- Example of journal acceptance rates:
  - IEEE TRO 2008, global rate: 23%
  - for papers with multimedia: 39%
  - for revised and resubmitted: 52%

Journal Publishing



Conference Publishing



2. How to Write a Paper?

- Blank-page panic? → write the section titles and an itemize with the main points for each section
- An abstract draft helps to center the work → all authors know what the paper is about
- Add theorems, figures and tables explaining your method and your results

Important Tips:

- **Never** send out a paper without having read it carefully from top to bottom (you and your supervisor!)
- **Never** write a "temporary" stupid phrase in the paper

Style

- Keep it simple
  - Avoid long, complicated phrases
- Keep subject and verb close together
  - Anything in between risks to be considered annoying detail
- Use the active voice
  - ✘ An experiment to compare A and B has been performed (who?)
  - ✓ We have performed an experiment to compare A and B
- Be clear and concise, and use concrete language
  - ✘ The system behavior leaves something to be desired when the noise increases to moderate levels
  - ✓ With a 10% of spurious data, the system fails

Title

- Summarize the paper in a few words
- Goal: convince to download and read the paper
  - ✘ Blind image deconvolution by multiscale variational search
  - ✓ Removing camera shake from a single photograph
- The paper is more likely to be cited if the title tells a story
  - ✓ Mapping Large Loops with a Single Hand-Held Camera
  - ✓ Building a Global Map of the Environment of a Mobile Robot: The Importance of Correlations
- If you are inventing a method/system, name it in the title
  - ✓ Data association in Stochastic Mapping using the *Joint Compatibility Test*
  - ✓ *ORB-SLAM*: a versatile and accurate monocular SLAM system

Abstract

- Goal: convince to download and read the paper
- Summarize the paper in a few sentences
- Abstract and paper are redundant: the paper does not need the abstract to be understood
- **State the main contributions and results**

It this paper we present a new method/algorithm/system .... for the problem of .... It consists in .... We carry out a detailed evaluation/experiments and show that in comparison with current methods, our proposal is more/less .....

Introduction

- Goal: Explain context and claim your contributions
- Describe the problem.
  - Why is it interesting? Why is it not solved?
- Related work (it may work better after the paper body)
  - Discus **both** advantages and disadvantages of **all** references
  - Be generous to the competition, they are likely reviewers!
    - ✓ "in his inspiring paper, X shows…"; "we build on the work of X…"
- State explicitly your contributions
  - They must be proven with evidence in the paper
- Most common reasons for paper rejection:
  - The contributions are not clear
  - The claims are not substantiated in the paper
  - Failing to cite and compare with previous work

Contributions and Results

- Goal: provide **evidence** to support **all** your claims
- First convey the intuition, then give the details
- Be kind to your readers
  - Don't assume they know everything you do
  - If you build on previous work, give a high-level summary
  - If a section uses known techniques, say so
- Your descriptions should allow to reproduce your work
  - If possible, make your software and data available
- Compare with the relevant previous methods
  - When possible, use standard datasets and benchmarks

Discussion and Conclusions

- Conclusion ≠ Summary of the paper
  - Do not repeat the abstract or introduction
  - Do not summarize your technique
- Synthesize the results of your work
- Separate what is significant from what is not
- Put your results in perspective
- Be honest about the limitations of your technique
- Discuss conjectures, wish lists and open problems

3. How to Write a Rebuttal?

- When resubmitting a RR or CA paper, journals require a letter with the response to the reviewers
- Goal: convince the reviewers and the Associate Editor that the paper has been improved to warrant publication
- Listen to the referees, they have given their time for free to help you improve your paper

The three golden rules:

1. Answer completely
2. Answer politely
3. Answer with evidence

H.C.Williams, “How to reply to referees’ comments when submitting manuscripts for publication”, J. American Academy of Dermatology, 51(1): 79-83, July 2004.

Rule 1: Answer Completely

- Copy and paste the comments from the Associate Editor and the reviewers and insert your answer to each comment.
- Numbering the comments may help:

  Associate Editor

  Comment 1

  …..

  Response

  …..

  Reviewer 1

  Comment 1

  …..

  Response

  …..

- Address the issues **in the paper** and describe your changes in the response letter.

Rule 2: Answer Politely

- Be grateful for both praise and criticism
  - Praise improves your mood, criticism improves your paper
- If a reviewer misunderstands, it's **your fault**
  - ✘ The reviewer does not know the field
  - ✘ The reviewer has not understood, we meant X
  - ✓ We have modified section Y to make clear X
  - ✓ To clarify the issue, we have added this paragraph to section Y: "<copy and paste the paragraph here>"
- For critical comments
  - ✓ We agree with the referee that …, but …
- For comments not that critical
  - ✓ We agree that this is an important area that requires further research

Rule 2: Answer Politely

- How to say no
  - ✓ With all due respect to the reviewer, we believe that this point is not correct. <And then, **provide evidence**>
  - ✓ The reviewer's comment about the limited size of the experiment is unfair, the experiment that we show is the largest to date [1] [5] [8].
  - ✓ We respectfully disagree with the reviewer in the need to compare with [7]: their method does not work with a single camera and ours does.

Rule 3: Answer with Evidence

- Editor's assumption: the reviewer is correct
- If you argue back with opinions instead of evidence, the paper is dead
- If you disagree with the reviewer
  - Explain why and provide a solid argument
  - Back it up with facts supported by references
- If the reviewer found your results not convincing
  - Provide more compelling experiments
  - Compare you results with previous techniques

Some special cases

- Conditionally accepted papers
  - Perform all the changes requested
  - Be concise in your answers
  - Resubmit quickly
  - You will probably get a speedy acceptance

- Conferences with a rebuttal phase
  - Usually, you cannot provide a revised paper with your rebuttal
  - If space is limited, answer only the most critical comments
  - If the reviewer is wrong, provide evidence
  - Explain how you will change the paper to address the issues
  - If the changes are too important, the paper is dead

4. How to write a review?

A. J. Smith, “The task of the referee”, Computer 23(4):65-71, Apr 1990

- Direct your critics at the paper, not at the authors
- Be constructive
  - Judge the paper for the contributions it contains, not for what is missing
  - Suggest improvements
  - Specify **necessary** and **suggested** changes
- Be specific
  - Point out witch parts are difficult to understand
  - If something is wrong, explain why
  - If something is not new, provide references

The review report (1)

- What is the major paper contribution?
  - Is the goal significant?, is the problem real?
  - Is the main idea novel **and** interesting?
  - Does it advance over previous works?
  - If you think that the paper is good, explain why. Otherwise, a negative review may easily kill the paper.
- Is the paper technically correct?
  - Are the assumptions made explicit? Are they reasonable?
  - Are the mathematics correct?
  - Are the proofs correct?
  - If you have not checked all the math, warn the Associate Editor.

The review report (2)

- Are the results convincing?
  - Are the simulations and experiments realistic?
  - Were all significant cases tested?
  - Is the comparison with previous techniques fair?
- Are the correct conclusions drawn from the results?
  - Are all the paper claims substantiated with evidence?
- Is the presentation satisfactory?
  - A paper that is incomprehensible is not publishable
  - Does the abstract describe the paper?
  - Does the introduction explain the problem and framework?
  - Is the body clear and does it follow a logical order?
  - Is there too much or too little detail?

5. Ethical Issues

- Authorship
  - Authors have responsibility for their papers
  - "The IEEE affirms that authorship credit must be reserved for individuals who have met each of the following conditions:
    a. Made a significant intellectual contribution to the theoretical development, system or experimental design, prototype development, and/or the analysis and interpretation of data associated with the work contained in the manuscript;
    b. Contributed to drafting the article or reviewing and/or revising it for intellectual content; and
    c. Approved the final version of the manuscript as accepted for publication, including references."
    » IEEE Publication Services and Products Board Operations Manual, section 8.2.1
  - Being the director of the lab, the project leader, or having got the funds, **are not reasons to be a paper's author**

Ethical Issues

- Plagiarism
  - The use of someone else's prior ideas, processes, results, or words without explicitly citing the original author and source
  - Potentially severe ethical and legal consequences
  - You can cite small portions of text, within quotes
  - For figures, you need written permission by the copyright holder
  - Always cite the source

Ethical Issues

- Self-Plagiarism
  - Copying from your own papers, without a proper citation
  - Repeating in a journal results published in a conference is OK, provided there are no copyright issues, you cite the conference paper, and make explicit the improvements performed
    - ✓ "A preliminary version of this work was presented at ICRA'09 [1]. In this paper we include new experimental results and a more detailed analysis of the robustness of our algorithm."
  - Check the journal's policy. Some don't allow republishing, other require a specific degree of improvement. Example IEEE Trans. on Industrial Informatics:
    - » "Edited and substantially enhanced versions of conference papers with 40-50% of a new content may be considered for a review if the new material is of a novel nature and warrants publication. Such papers have to include the original conference paper(s) as a reference and may be required to have a different title."

Ethical Issues

- Salami slicing, or minimum publishable unit (MPU)
  - Splitting a contribution in the smallest portions that could still be published
  - You CV will grow fat, your reputation, slim.
- Conflicts of interest. You should not review a paper:
  - If an author is a close friend or an enemy, was your supervisor or your student, is in your same institution, has got common grants or has performed joint work with you in the last 4 years.
  - If you are doing directly competing work
    - » You are working on a paper with similar ideas
- Reviewing ethics
  - Don't use or discuss the contents of the papers you have reviewed, until published

Further reading

- A.J. Smith, The task of the referee, Computer 23(4):65-71, Apr 1990
- H. C. Williams, How to reply to referees' comments when submitting manuscripts for publication, J. American Academy of Dermatology, 51(1): 79-83, July 2004
- K.L. Woolley, J.P. Barron, Handling Manuscript Rejection: Insights from Evidence and Experience, Chest 135(2): 573-577, Feb 2009
- F. Durand, Notes on Writing, MIT CSAIL
  http://people.csail.mit.edu/fredo/student.html
- A Hertzmann, Writing Research Papers,
  http://www.dgp.toronto.edu/~hertzman/advice/writing-technical-papers.pdf

Take-Home Messages

- Before submitting a paper double-check that:
  - The abstract and introduction state your contributions
  - All claims are substantiated in the paper
  - You cite and discuss all relevant previous works
- The review process may have some randomness
  - The lower the publication rank, the higher the randomness
- Listen to the reviewers and don't get angry with them
- Do not discuss reviews with peers, they might be the actual reviewers!
- Answer completely, politely, and with evidence
- A revised paper has bigger chances to get accepted