

CAP5415-Computer Vision
Lecture 25-Research Ethics

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What is Research?

What is Research?

“Studious inquiry or examination aimed at the **discovery** and **interpretation of facts**, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws.”

Scientific Knowledge

- The object of research is to extend human knowledge beyond what is already known.
- Science is a shared knowledge based on a common understanding of some aspect of the physical or social world

Paper?

- **A paper is an organized description of hypotheses, data and conclusions, intended to instruct the reader. If your research does not generate papers, it might just as well not have been done.**

(G. Whitesides, Adv. Mater., 2004, 16, 1375)

Scientific Misconduct

- “Scientific misconduct means fabrication, falsification, plagiarism, or other practices that seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting or reporting research”

Plagiarism

- **Plagiarism**: using the ideas or words of another person without giving appropriate credit (Nat. Acad. Press document)
- **Self-Plagiarism**: The verbatim copying or reuse of one's own research (IEEE Policy statement)

Both types of plagiarism are considered to be unacceptable practice by most scientific publications

Research Ethics

- You've just done a comprehensive experiment with 100 test cases
- 99 of those test cases went just like your theory said they would
- 1 case did not, and you don't know why. You think the sample might have been contaminated
- Do you report that 1 case or not?

Research Ethics

- You're the acknowledged leading expert in your field and have been for 15 years.
- The theory you discovered 15 years ago has made you famous and respected, and brought enormous prestige to your university.
- You hear you're being nominated for the Nobel Prize for your life's work
- You've just gotten the data in from your latest experiment and guess what: Your famous theory is dead wrong.
- What now?

Problems of Authorships

- Disputes - Question of interpretation
 - Whether “contribution” was substantial.
 - Discuss authorship when research is planned
 - Decide authorship before article is started
- Misconduct
 - Authorship is unethical
 - Stick to facts
 - Avoid being emotional

Authorship Problems

Gift Authorship

Inclusion of Authors who did not contribute significantly to the study

Hierarchy (Expectation / favour)

Colleagues (Increase publications)

Ghost Authorship

Absence of Authors

Professional writers (Should be acknowledged)

Hierarchical / political / personal reasons

General Guidelines (ICMJE)

- “Authorship credit should be based only on
- 1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data;
 - 2) drafting the article or revising it critically for important intellectual content; and
 - 3) final approval of the version to be published.
- Conditions 1, 2, and 3 must all be met. “**

Overlapping Publications

- Duplicate Submissions
- Duplicate Publication
 - Redundant Publication
 - Acceptable Secondary Publication
- Competing Manuscripts
 - Same study
 - Same Database
- Sibling Publications

Duplicate Publications

- Most journals will not consider simultaneously submitted manuscripts
 - potential for disagreement over right to publish among journals
 - possibility of unnecessary duplication of peer review and editing
- Is acceptable
 - when both editors believe it is in the best interest of Public Health
 - Paper has been rejected by another journal
 - Full report following submission of abstract

Redundant Publications

- Publication of a paper that substantially overlaps with an already published article
- Unethical
 - Wastes time of peer-reviewers and editors
 - Wastes resources and Journal pages
 - Leads to flawed meta analysis
 - Distorts Academic reward system
 - Infringes on copyright
 - Inflates scientific literature for no benefit other than to author

Resources

- National Academy of Sciences booklet:
On Being a Scientist
- AAAS booklet:
Good Science and Responsible Scientists
- Sigma Xi:
Honor in Science
The Responsible Researcher: Paths and Pitfalls

Text Manipulation

- Borrowing “just a sentence or two” without attribution is plagiarism.
- But plagiarism is easily avoided: give the citation.

Citations

-Read the work before you cite

-Important to cite the work correctly and completely

Paper trail reveals references go unread by citing authors

Philip Ball

Many of the references cited in scientific papers have not been read by the authors citing them, according to an analysis of how errors in citations propagate through the literature.

It isn't easy to establish directly — and truthfully — whether citations have been

reference being copied from someone else's citation list. The most common misprint appeared 78 times.

Based on the number of distinct misprints, the two researchers estimate that only 22–23% of citations followed from a reading of the original paper. And they postulate that this is typical of the scientific literature as a whole.

Fast Track in Academia!

- Professor Jeannette Wing at CMU: new category in her vita:

“Papers of mine published in a refereed journal under someone else's name.”

Etiquette

- Praise good behavior in public.

Criticize bad behavior (e.g., failure to cite) in private.

- If public criticism is necessary, stick to objective facts. Personal attacks are never appropriate.

Dealing with Problems

- Get your advisor's advice.
- If you have a problem with your advisor, discuss it with him or her before seeking outside opinions.
- If necessary, speak confidentially with some other senior scientist whose opinions you respect.

Dealing with Problems

- Sometimes misunderstandings or unhappy situations can be cleaned up through mediation by a third party.
- In the event of serious misconduct, charges may be filed with the Provost's office.
- The university has a formal policy for handling misconduct allegations.

Slice Credits and References

- Hoomen Momen, Bulletin of WHO
- David S. Touretzky, CMU
- Leonard V. Interrante