Writing for

Computer Science & Engineering

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Ethics

Introduction

- Science is built on trust
  - Researchers are expected to be honest, and research is assumed to have been undertaken ethically
  - Referees assess whether results are significant but are not expected to investigate whether the reported experiments actually took place, because it is assumed that the authors have not lied about their work
- The major societies of science have codes of conduct that scientists are expected to adhere to
  - Research should be undertaken within relevant ethical frameworks, which protect privacy and minimize the risk of harm to individuals; and researchers should not plagiarize others or misrepresent their contributions to the work
- The most conspicuous form of unethical behavior in computing is plagiarism because it steals work from other scientists and the hurt to others is obvious

Introduction

- Other forms of misconduct
  - Abuse of power
  - Fraud

- Issues of ethical concern for science in general include misrepresentation, plagiarism and self-plagiarism, and use of human subjects

Intellectual Creations

- Many of the ethical issues that arise in the context of research are related to the ownership of both ideas and descriptions of them
- Copyright concerns the expression of idea; that is, the words and pictures used to say something are protected, but not the ideas themselves
- Patents and prior inventions protect processes, inventions, and concepts
- When a researcher writes a paper, the content represents new intellectual property, which may be patentable. The copyright in the form or presentation is held by the author; typically, when the paper is published the author assigns copyright to publisher
- Publisher owns the text, figures, and diagrams, and the authors cannot legally use these again without the publisher’ s written permission

Plagiarism

- A central element of the process of science is that each paper is an original contribution of new work
- Plagiarism is re-use in one paper of material that has appeared in another, without appropriate acknowledgement
  - The theft may involve ideas, illustrations, results, text, or even whole papers

Plagiarism

The impact of viruses has become a major issue in many large organizations, but most still rely on individual users maintaining virus definitions, with no internal firewalls to protect one user from another. However, any structure is only as strong as its weakest link; these organizations are highly vulnerable.

✗ Viruses have become a major issue in many large organizations, but most organizations still rely on users maintaining virus definitions on their individual computers, with no internal firewalls to protect one computer from another. However, any structure is only as strong as its weakest link; these organizations are highly vulnerable to infection (Barlman and Trey 2001).

In this example, a citation is given, but it isn't made clear that the citation refers to the whole block of text. Also, there is nothing to indicate that the wording is unoriginal - despite a few small changes, the text is copied.

✓ As discussed by Barlman and Trey (2001), who investigated the impact of viruses in large organizations, "most still rely on individual users maintaining virus definitions, with no internal firewalls to protect one user from another. However, any structure is only as strong as its weakest link; these organizations are highly vulnerable."

Plagiarism

- Paraphrase of the structure of a paper is also plagiarism
  - If one paper follows another to the extent that they use the same headings, have tables of the same layout, cite much the same background literatures, describe the literature with respect to the same criterion, and have similarly designed experiments with similar data exploring the same properties, then the second paper is arguably plagiarized
- These kinds of plagiarism can happen when trying to draft a paper
- It is easy to avoid plagiarism
  - When writing fresh text, avoid using other text as a guide, even if you are discussing outcomes reported by someone else
  - Cite other text and be explicit about which material in your work is derived from elsewhere
  - Mark where the cited material begins and where it ends
  - Use quotation makes for borrowed text
  - Construct reference lists by enumerating the papers you havv read, not by copying the lists in other papers
  - Design all your own pictures

Self-plagiarism

- Authors who re-use their own text may well be plagiarizing. Using the same text in two papers is a step in the direction of publishing the same work twice
- A series of papers may be based on the same ideas or previous work, rewriting the background each time is important
  - The discipline of writing new text each time helps to keep the material fresh
  - High quality discussion of background material or of competing proposal increases the chance of it being accepted
  - Authors presumably do not wish even a minority of their colleagues to view them as lazy or unethical
  - Most researchers work in teams of shifting membership.
- Safe approach is to write fresh text for each new paper

Self-plagiarism

- Publication of more than one paper based on the same results is prohibited under the standard scientific code of conduct
  - Simulatneous submission to more than one journal or conference of papers based on the same results should be disclosed at the time of submission -> reject the paper
  - If an experiment has been tried on some data, running the same experiment on other data is not new work unless it leads to new conclusions
- In the context of plagiarism and self-plagiarism, remember that publications are a permanent record

Misrepresentation

- Misrepresentation occurs when a paper does not accurately reflect the outcomes that were observed or the contributions of previous research
- When presenting results, provide enough detail to enable reproduction or verification, be fair in description of other work, report negative as well as positive results
- In its clearest form, misrepresentation is fraud. Another form of misrepresentation is when authors imply that they have high confidence in their results when in fact the expieriments were preliminary or were limited in some way
- Choosing a poor system as a baseline might just be lazy. Badly implementing a baseline without verifying that the baseline works as well as was previously reported, beings to look more like deception

Authorship

- Deciding who has merited authorship of a paper can be a difficult and emotional issues
- Each author must have made some significant contribution to the intellectual content of the paper
  - Directed activities such as programming do not usually merit authorship, nor does proofreading
- A researcher who has contributed to the research must be given an opportunity to be included as an author, but authors should not be listed without their permission
- Involvement in an extended project does not guarantee authorship on every paper that result from the project
- A related issue is that of author order, since readers may assume that the first author is the main contributor

Confidentiality and Conflict of Interest

- Researchers need to respect each other’ s privacy. Sharing of a computer system with other people does not mean that one has the right to use their data without permission
- Commericial relationships may need to be disclosed to editors or in the text of a submitted paper.
- Another area where there is potential for conflict of interest is in refereeing of papers and grant proposals, and examinations of theses.
- It can be difficult to maintain objectivity if the author’ s opinions strongly conflict with your own. Make every effort to be fair, or seek an alternative referee. Also, your evaluation should be based on the paper alone; don’ t be swayed by the stature of the author or institution

Confidentiality and Conflict of Interest

- A related issue is of confidentiality: papers are submitted in confidence and are not in the public domain. Papers you are reviewing should not be shown to colleagues


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