Notes on Plagiarism: An Electrical Engineering and Computer Science Perspective

This document supplements the material provided by the Learning Resource Center, available at this URL:

$$\text{http://www.lmu.edu/Asset388.aspx}$$

The above link leads directly to a PowerPoint slide presentation called *Avoiding Plagiarism* that summarizes and gives examples of what plagiarism is and how to avoid it.

This write-up consists of plagiarism issues, questions, and concerns that may occur more frequently in or are specific to the disciplines of electrical engineering and computer science.

1   Content Other Than Text

Scientific and technical fields such as electrical engineering and computer science produce artifacts of work that go beyond written text. In these situations, the same rule applies: if it isn't yours, then cite it. The following subsections include specific notes and guidelines on some of these artifacts.

1.1   Diagrams and Schematics

Diagrams, schematics, and other visual aids have the exact same protections as words on a page. Proper attribution of this material is analogous to proper attribution of text:

- If you copy a figure directly, then cite its source just as you would for quoted text. Typically, the citation is a note on the margin of the figure, or else part of the figure's caption.

- If an exact copy of a figure is insufficient for what you wish to say — for example, you may wish to integrate the diagram with additional concepts, or perhaps simplify it to emphasize the particular point that you wish to make — then redraw the diagram, with its additions or changes, in its entirety. This is analogous to completely understanding a segment of textual material then restating or summarizing it in your own words. As always, include a citation to indicate that some of the diagram is derived from another source.

1.2   Tabular Data

Similarly, tabular data must either be copied directly and cited, or derived and cited. As always, the fundamental rule is never to claim or imply that someone else's work is your own.

1.3   Formal Notation or Specifications

Formalisms (e.g., grammars, UML diagrams, formulas, equations) can't really be "phrased in your own words," so inclusion of such content (unless it is your own!) is always expected to be accompanied by a citation. Unlike standard text, however, these items are almost always blocked out separately, and not to be enclosed in quotation marks.

1.4   Software

Imported or linked libraries are generally accepted as clearly not being your own work; depending on the specific library, additional actions such as an attribution in a README or inclusion of a license are necessary to use such work appropriately.

In the case of source code, there must be clear attribution in a README or in the comments of the submitted work. Availability of source code is frequently due to an open source license, and so in that case, the license may stipulate additional requirements for appropriate use of the source code.

2   Gray Areas: "Legal" But Low-Quality

The following scenarios illustrate work that is technically "legal" (i.e., not plagiarism), but still of very low quality. While not necessarily specific to electrical engineering and computer science, these examples seem to occur more frequently in such fields due to the frequent occurrence of technical or formal content.

Even though these examples don't fit the specific definition of plagiarism, they do reflect thought processes (or lack of them) that resemble what takes place in plagiarized work: an inability to understand source material completely, and an unwillingness to make the effort to state others' ideas in one's own words.

2.1   The "Quotestravaganza"

Work that consists mostly or solely of direct quotes, despite being attributed, is sure to be graded poorly. While the work is not technically plagiarized, it still shows very little effort on your part.

For example, a paper on the Java programming language written in the following manner is easily recognizable as a "quotestravaganza:"

Java Integer Literals

The Java Language Specification [GJSB05] defines integer and decimal literals as follows:

> An integer literal is of type `long` if it is suffixed with an ASCII letter `L` or `l` (ell); otherwise it is of type `int`. The suffix `L` is preferred, because the letter `l` (ell) is often hard to distinguish from the digit 1 (one).
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> A decimal numeral is either the single ASCII character 0, representing the integer zero, or consists of an ASCII digit from 1 to 9, optionally followed by one or more ASCII digits from 0 to 9, representing a positive integer.

Java also recognizes hexadecimal and octal literals. For these literals, the Java Language Specification [GJSB05] states:

> A hexadecimal numeral consists of the leading ASCII characters `0x` or `0X` followed by one or more ASCII hexadecimal digits and can represent a positive, zero, or negative integer. Hexadecimal digits with values 10 through 15 are represented by the ASCII letters `a` through `f` or `A` through `F`, respectively; each letter used as a hexadecimal digit may be uppercase or lowercase.
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> . . .
>
> An octal numeral consists of an ASCII digit 0 followed by one or more of the ASCII digits 0 through 7 and can represent a positive, zero, or negative integer. Note that octal numerals always consist of two or more digits; 0 is always considered to be a decimal numeral — not that it matters much in practice, for the numerals 0, 00, and `0x0` all represent exactly the same integer value.

A paper written in this manner generally does not do very well. While there is no specific threshold for which direct quoting becomes excessive, most instructors will agree that "you know it when you see it" — so don't even take a chance.

2.2 "Wikiholism"

The richness of information available on the Web is apparent in sites such as Wikipedia or even Google. Despite the nickname for this phenomenon, the practice refers generally to the indiscriminate inclusion of online information. "Wikiholism" is an appropriate nickname because the most frequently cribbed sources are usually technical reference sites that are formatted as Wikis.

"Wikiholism" is essentially the same as a "quotestravaganza," but can be more insidious for the following reasons:

- Web page content is mind-numbingly easy to copy, paste, then forget about citing — be very aware of what you're doing when you do have to copy Web content. This goes not only for text but also for images and other Web assets.

- Not all Web sites go through the same peer review and vetting as more conventional publication mechanisms. For example, while Wikipedia tries to enforce a policy of attribution, many authors rely on their own "expertise," and the genuine value of such articles takes time to refine and validate.

- Web content is subject to flux or revision, and may sometimes disappear outright. While this property is beneficial for certain applications, it is more likely to be detrimental to student work that tries to "stand on the shoulders of giants."

The general guideline is to use Web sources with discretion: verify that a Web site is an authoritative source of information, and that its URL and content are stable. For example, digital libraries of peer-reviewed, published content work out fine; in fact, in this case, the Web is just a *medium* for distributing the content, and not the source of the content itself. In these cases, your citations need not even reference the Web itself, since such sources are in reality "backed up" by established non-Web content. When in doubt, ask your instructor.

3   FAQs

1. *The LRC presentation says that I don't have to cite anything that is common knowledge in a field. But I'm a student! How do I know what is or isn't common knowledge in my field?*

   Gaining a feel for what is and isn't common knowledge within a particular domain is certainly an objective of studying any subject in the first place. If you are not sure, then:

   (a) Review your course material to see if textbooks or handouts appear to treat something as common knowledge, or

   (b) Ask your instructor. Be prepared to be told to go back to your course material anyway, if the instructor thinks that this is something you should already know.

2. *My source says what I want to say just perfectly! How can I possibly do better than that?*

   You don't. This is why direct quotes *are* allowed in submitted work. However, it is seldom the case that this "perfection" extends for the entirety of your paper.

Not all research papers or other work are expected to be earthshaking showcases of innovation; more frequently, student work is expected mainly to be reflective of a student's understanding of a particular subject matter.

The bottom line is, if you truly understand something, you can find a way to talk about it in your own words. You are free to resort to an occasional quote, but true understanding never results in a necessity to say absolutely everything verbatim.

3. *My assignment or paper topic is so common that there are answers or other papers just like it all over the place. How can I avoid being accused of plagiarism?*

Again, the key here is to genuinely understand the subject matter. This type of understanding always finds a way to emerge in a form that is recognizably unique to you.

On the other hand, if certain ideas appear to be unusually prevalent, then perhaps this can count as common knowledge. In this case, ask your instructor.

References

[GJSB05] James Gosling, Bill Joy, Guy Steele, and Gilad Bracha. *The Java Language Specification*. Addison-Wesley Professional, 3rd edition, June 2005.