

Citing Others' Work

At the time of this writing, toward the end of January, I am tied up with reading and checking theses of students graduating this spring. For those of you who are not familiar with the Japanese academic calendar, our academic year starts on April 1 and ends on March 31, which is not synchronous with the normal calendar year. Some complain that it is not compatible with the Western system and that it is inconvenient for student exchange programs. That may be so, but as compensation, students can start their academic year being celebrated by the gorgeous full bloom of cherry blossoms (the same with the Japanese fiscal year, but that's another story).

Anyhow, this is why it is the busiest time for us, as Japanese professors, and also for students. In Japan, every engineering student in all major universities has to write a thesis—a bachelor's thesis for a bachelor's degree and a master's thesis for a master's degree. There are many students, and now you see why this is a busy time for us.

It is not always fun to read a bachelor's or master's thesis. If the thesis was well written and shown sufficiently in advance of the submission deadline, it would be fun, but this is not always the case. You have to teach the students how to write, and often what to write, and how to finish, but such things are all so common, and I certainly am not the only one who suffers from some agony (and occasionally joy) through this task. During this activity, I have made some interesting observations to which I would like to draw your attention.

When a student writes a thesis, he/she naturally has to state some preliminary materials to explain the problem setting and describe some basic tools. I have noticed that many students fail to cite proper references even to key facts

well but I later discovered that he/she just copied that part without any reference to the source. This is indeed very embarrassing.

Either they do not know the word *plagiarism* or else do not know how

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or ideas. The student often states quite casually what has been taught to him/her, without providing references, as if he/she were born with that knowledge or as if it were discovered by him/her. This is embarrassing. Students do not seem to realize the importance of differentiating between knowledge that is already known and results they have discovered. I have encountered several cases where the student appeared to write some phrase quite

serious it is. In any event, respect for knowledge acquired by someone else does not seem to be built into the nature of humans, and most students have to be taught about this standard practice. Today, there is far too much knowledge available over the Internet, and those who learn something from such sources rarely feel that they are using others' "intellectual property" without permission. The knowledge is just out there, so handy to be picked up, and those who copy such sources feel almost no guilt whatsoever in "utilizing" them. Likewise, when they have to explain some background material, they seldom stop to think whether they are employing their own explanation or an explanation that they have borrowed.

I dare not say that these are only one step away from plagiarism. As I see it, the psychology behind all this is that, to those students, the written facts appear to be so well established that they are on a basis as a solid as a rock and are free to use; no usage can damage their identity. Or it may be as if they were taking a final exam where they can use whatever material they



Yutaka Yamamoto at the President's Award Luncheon, December 11, 2012 at the IEEE Conference on Decision and Control (CDC 2012) in Maui.

can recall from the textbook, in which case they fail to realize they are also authors on an equal footing with the others. But whether it is just sloppiness or poor scholarship, it is still one step toward plagiarism.

In any case, there seems to be a fundamental naivety in the understanding of intellectual property. True, no one cites *Principia* when referring to Newton's second law. Needless to say, materials in textbooks or in papers are the results of authors' work or discovery, and we take for granted that others respect our originality just as we respect that of others. This is a fundamental principle in all scholarly activities. Unfortunately, as analyzed above, this does not seem to be built-in knowledge for everyone, and this principle should be carefully taught at certain points in a person's education. If this principle is not taught, it might lead to a very casual attitude about the availability of other people's originality. If a person grows accustomed to disrespecting the originality of others, then the stage is set for the person to later commit plagiarism. Our former IEEE Control System Society (CSS) President Christos Cassandras wrote about plagiarism in the August issue of this magazine [2], and former CSS Vice President for Publication Activities Frank Doyle wrote about ethics in publishing in the December issue [4]. There was also a special session at CDC 2012 on this subject. These writings contain a lot of useful information, and I recommend that you read them if you have not done so.

When a paper is plagiarized, it does not usually come to the surface right away. The author whose work was stolen may not notice. The plagiarism is often discovered later, typically by a third person who happens to look for work related to his/her research. While I was vice president of Publication Activities from 2007 through 2008, I handled five cases of alleged plagiarism. Two of the allegations were very serious. In one case a



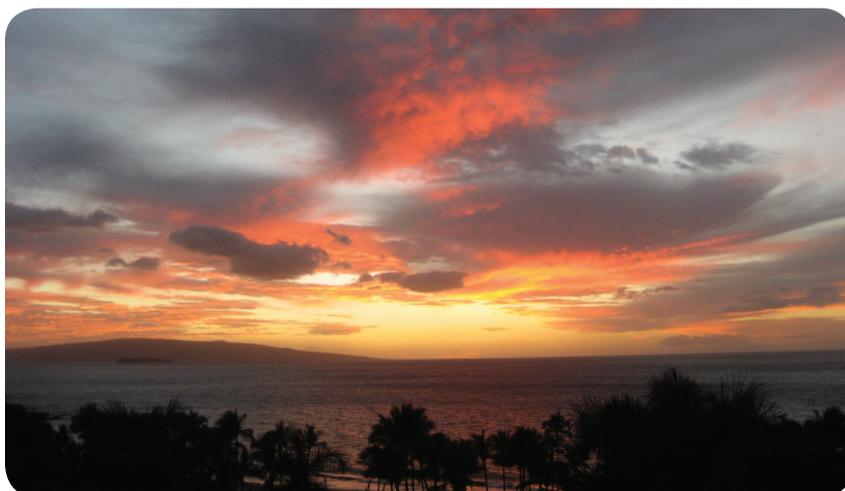
(From left) Jessy Grizzle (Bode lecturer), Alberto Isidori (Control Systems Award recipient), Yutaka Yamamoto, and Richard Middleton (2011 CSS president) at the President's Award Luncheon, December 11, 2012 at CDC 2012 in Maui.

verbatim copy of a published paper was published in the CDC proceedings, and the authors received a five-year ban from all IEEE publications. IEEE has established strict antiplagiarism guidelines, and the reader is referred to the IEEE Publications Services and Products Board operations manual [1], especially Section 8 where the IEEE policy for handling such cases is explained in detail.

Plagiarism is a sin that can threaten the credibility of our scientific community. In an extreme case, if a journal turns out too many plagiarized papers, then that journal would soon lose its reputation and readership. Even if not to that extreme, several unethical practices can still damage

a journal's value and reputation. Let's take a look at some of such practices.

» *Multiple submissions.* This practice is when an author submits identical, or nearly identical, manuscripts simultaneously to different conferences/journals. This practice wastes the time and energy of the reviewers and editorial board. There is an enormous number of submissions to our journals every year, and reviewing and making decisions on these papers depends on the voluntary efforts of the editorial boards. Actually, a very high percentage of such multiple submitted manuscripts get caught



Sunset at the CDC 2012 conference site, the Grand Wailea Resort, Maui, Hawaii.

by reviewers or editors, sooner or later. Part of the reason is that a paper, submitted to different journals, can often be reviewed by the same or a similar set of reviewers. So such a crude effort at maximizing the number of papers simply does not pay. See [2] and [3] for more detailed discussions. (Note that this practice should be strictly distinguished from an evolving series of publications, e.g., first in a conference and later as a journal article in a more complete and evolved form; see [1] and [4] for more elaborate discussions.)

» *Quantity versus quality:* Such author misconduct often stems from excessive emphasis on the mere number of papers. Plagiarism is an extreme case of this. If this emphasis of quantity over quality goes too far, the journal will be devalued and everyone will lose. This is certainly the worst scenario, and the editorial board and reviewers work together (as volunteers!) to maintain the high standards of our journals. The effort includes the important task of maintaining the quality of the papers published in the journal. Many people now talk about and emphasize the importance of rapid publication. But it is even more important to ensure the quality of a journal, and this is where the editorial board and the referee systems keep striving so hard.

» *Impact factor (IF) manipulation:* The IF of an academic journal has been introduced to measure its impact in terms of the average number of citations to recent articles in that journal. It has become very popular to measure how many times the journal is being cited in a given year on average. The impact factor is calculated as follows: Let A be the number of times that articles

of a journal published in the preceding two years, say 2010 and 2011, were cited by all indexed journals during 2012. Let B be the total number of articles in 2010 and 2011. Then the journal's impact factor for 2012 is A/B . A high impact factor for a journal may appear to indicate that the journal is cited often and has indeed high "impact." However, it is pointed out that this formula has some pitfalls. For example, a journal publishing a relatively small number of articles tends to have a high impact factor, since the denominator B is small. More seriously, there now seems to be a number of journals that artificially manipulate this measure. Naturally, if a journal can force the authors to cite many articles from that journal as a requirement for publication, then the IF of that journal will increase. Of course, providing citations to the correct sources is always a prerequisite for publication, which is the starting theme of this column. But *if citations are artificially manipulated* for the sake of increasing a certain measure, the credibility of our scientific community will be damaged. Uncontrolled inflation can destroy everything. In our meeting in December 2012, the CSS Board of Governors endorsed a letter sent by then CSS President Christos Cassandras on behalf of the Society to the IEEE president, urging the IEEE to establish a code of ethics on citation manipulation. The result is yet to be seen, as of the date of this column.

I believe the true value of our Society is in selecting and publishing good papers, in helping to disseminate precious information given in the papers, and in preparing and providing the scholarly environment that leads to new horizons for our

community. We do understand that there are criticisms against the current peer review system. Some claim that it only delays publication. Since electronic printing has become so inexpensive, some see the future of publication as open access free publication such as arXiv. This is, in itself, an independent topic so I will not go into detail here. But if *all* papers get *published*, how do we choose what to read? Defective as it may be, the peer review system serves to screen papers. If there is no quality control, it will just end in chaos. For this reason, our Society relies on numerous volunteers who read and review papers, helping to maintain the high standard that our journals have established in their long history. As the Beatles might have said, "the standard you need is on your shoulder." ("Hey Jude.")

SOCIETY NEWS

As Christos Cassandras wrote in his December article [3], we are launching a new journal—*IEEE Transactions on Control of Network Systems (TCNS)*. This new journal has been officially approved by the IEEE, and the Society is now working on forming the editorial board. The predicted launch time is 2014. Plenty of credit should go to Christos Cassandras (2012 CSS president) and Frank Doyle (2012 CSS vice president for Publication Activities) for leading this initiative.

I welcome your feedback. I can be reached at yy@i.kyoto-u.ac.jp.

I would like to thank Prof. William Levine for valuable comments and feedback.

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