



Reinventing Wheels

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Plagiarism, exaggerated qualifications, and information overload are becoming rampant. What can be done about them?

Is there a cost associated with reinventing “technology” wheels? Probably. However, the frequency of repeated attempts to reinvent certain technology wheels seems limitless, and this is exacerbated by the publish-or-perish environment in which we live. (Parnas provided key insights to ponder on this subject.¹)

After 30 years in this field, I have no idea how many papers I’ve reviewed that used different terms and therefore appeared, to the uninformed reader, to be novel; however, they were nothing more than rehashes of what someone else had done earlier, masked by newly coined terminology (reinvented wheels). The more that readers and reviewers are confused by different terminology (for the same entity), the less impact publications will ultimately have. Terminology standardization and glossaries can play a role here,² but even in software engineering and computer science, common terms like “security” and “safety” are often interchanged, creating confusion. I suspect that open access will only make this problem harder to police due to the smaller time intervals between submission and publication.

However, this problem goes beyond publications; it also affects patents. Publications and patents often play a similar role: They attempt to demonstrate and verify the originality of an idea at some point in time to an individual or group. However, patent processes appear to have a better grasp on this issue due to the concept of prior art. Prior art is simply an acknowledgment by patent filers of previous work done by themselves or others on a cutting-edge topic. There is always a chance that a patent examiner assigned to a filing will not discover enough of the prior art, thus improving the chance of approval even when claims overlap. However, this probability is becoming smaller (from what I read).

And there are exaggerated qualifications. After having spent a couple of years on the IEEE Fellow Committee, I saw applicants make overstated claims. For example, some represented themselves as authors of books when they were no more than editors of collections of conference papers, all written by others. I witnessed even worse examples.

In terms of publishing, issues such as self-plagiarism, simple plagiarism, and articles that lack correct and proper citations are rampant. We also have the problem of information overload. The time to discover and digest the relevant material covering a topic is becoming shorter and shorter as the information space explodes.

So what is my point here? The problem of policing publications due to “wheel reinvention” and the lack of subject


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novelty is becoming increasingly difficult for readers and reviewers to resolve. How can they gauge when this is occurring? The shortage of time for reviewing and information overload are key culprits as well as confused (and newly coined) terminology, plagiarism, and a failure to cite and acknowledge the innovators of a technology or idea. We recognize that we have all stood on the shoulders of giants; let's agree to acknowledge them.

How do we solve this? I have no grandiose ideas, but reviewers could

add more value to their assessments if they compared submissions to related work on a more in-depth level. I realize that their time is precious, and reviewers are not patent examiners or IEEE Fellow Committee members; however, possibly a bit more due diligence would help.

Is this a new problem? No. Will it go away anytime soon? No. I just think it is getting larger and should be considered.

Food for thought. 

REFERENCES

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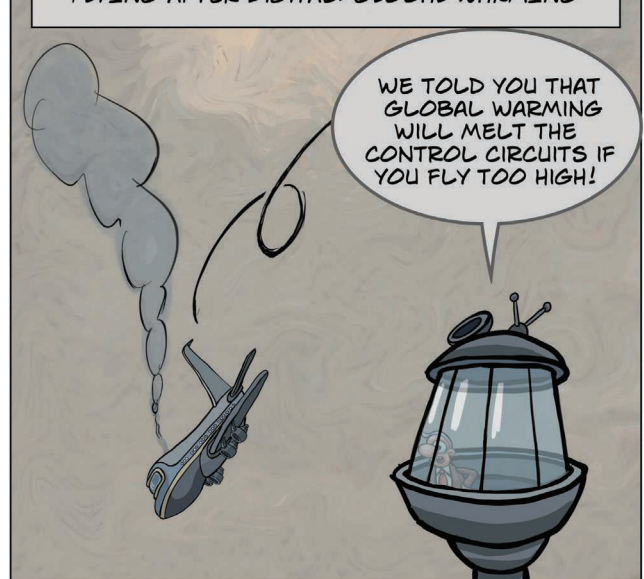
ERGUN
AKLEMAN



FLYING BEFORE COMPUTERS: ICARUS



FLYING AFTER DIGITAL: GLOBAL WARMING



IN GREEK MYTHOLOGY, DAEDALUS CONSTRUCTED WINGS FROM FEATHERS AND WAX TO ESCAPE FROM CRETE. HIS SON, ICARUS, IGNORED HIS INSTRUCTIONS NOT TO FLY TOO CLOSE TO THE SUN. AS A RESULT, THE WAX IN HIS WINGS MELTED, AND ICARUS FELL INTO THE SEA.