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OPINION PAPER

Editorial piece: Technology built on sand?

Peter Smith[1] · **Laura Smith**[2]

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Premise: scientists, technologists, researchers and developers often have a tendency to get swept away in the world of their own creations or designs [8].

Innovative algorithms and mathematical complexity can be extremely seductive and when trying to build ever-more complex models of the real world, it is understandable that some of us may be swept away on a tidal-wave of ideas and developments. But sometimes we forget, to our peril, that a model is just that, "a model" of reality. Whilst studying for my PhD a very wise mathematician once said to me (Peter) "do not get too caught up and transfixed in the mathematics. Think about the problem you are modelling. It is not about making a clever model; it is all about truly representing the real world". I have carried this advice with me ever since and, rather than focusing on the technology or the algorithms, I have always tried to stay rooted in why the project matters, the ethics and values which underpin its creation and how it will contribute to, and fit within, the context of a real-world implementation.

When examining issues within instructional design and technology, Reiser and Dempsey [8] discussed how some designers "admit they got too contrived and nonsensical" and, rather than ensuring their ideas were grounded in real-life application, need and ethical considerations, they became caught up in their own personal aspirations and vision. As a result, their efforts were less meaningful, useful and indeed, ethical. Rather than being grounded in sound ethical values, they produced technologies which may as well have been built upon sand. Thus, when translated into a real-world setting, they crumbled under the weight of their own weak scaffolding. Their outcomes were not effective and they became almost useless when placed within a real-life context. Much like the way in which Dorothy got swept away by the wind and travelled away to Oz leaving her roots in Kansas, we too can get swept over that rainbow into a magical world that is bright, colourful and seductive but we must never forget that "*there is no place like home*". We must remember our roots must lie within sound theory and ethical principles. It took Dorothy a trip into a dream and a meeting with a tin man, a strawman and a lion to learn the true meaning of ethics and values [9].

According to Plato [6], all endeavours must start with a moral question. Plato considered all human exploits to be expressions of morality or "virtue". He felt that before engaging with a project, we should always consider why action must be taken and what moral, or ethical code is underpinning the act [6]. Similarly, Aristotle also outlined the importance of sound ethical practises, stating that "good" ethics are "practical" and that only "virtuous" actions can be effective (Aristotle, 350 BCE). Again, when applying this to modern design, Aristotle is telling us that we must always ensure that we have a clear ethical code underpinning our work to achieve sound outcomes. That is to say, "*the reasons behind the choice made should be grounded in at least one moral theory*" [5].

I (Peter) always tell PhD students who claim "*there are no ethical issues*" that I don't believe them. Every project raises some legal, social, ethical or professional issues; in the past I have been called to part of an accreditation panel to consider University computer science courses on behalf of the British Computer Society [2] and we always ask about LSEPIes (legal, social, ethical and professional issues) and insist that they are covered in all courses.

We often see papers which are technologically sound and use very clever AI methods to solve real-world problems. These propositions have immense potential for good, however, they also have the potential to cause harm to human beings. The authors obviously did not fully consider the ethical implications of their work and somewhere got lost in the computational beauty of the solution and the excitement of its potential application. Such papers have great technical merit, however, as reviews and members of the editorial

✉ Peter Smith
peter.smith@sunderland.ac.uk

[1] Emeritus Professor, University of Sunderland, Sunderland, UK

[2] Newcastle upon Tyne, UK

board we have a duty to question the ethical basis on which they are built.

In conversation with my daughter, Laura, who studied sociology she reminded me of the importance of the early texts of Aristotle and Plato, referred to within this editorial piece, and how we can learn much from the seminal work of these great philosophers. Even after all this time, their messages old true and present us with an ethical code which guides how we use and develop our science and technology, and indeed should guide how we live our lives.

Thus, we believe that as reviewers and members of an editorial board it is our duty to encourage, no *insist*, that authors must always consider ethical underpinnings, and include a statement that says something like this in our Instructions for Authors:

> "All authors are expected to consider the social, ethical, environmental, legal and professional issues which their work might raise. As a minimum authors should include a section on ethics within their paper which discusses any ethical issues which might be raised by the technical work and the potential impact upon users and society in general. Authors are also encouraged to submit their work, at an early stage, for ethical approval by an appropriate body, such as the ethics committee of a university and to state that they have done so within the ethics section of the paper."

We propose that it is the role and duty of all publishers to require author statements on ethics from all authors and prospective authors. It is our duty as scientists to do so.

In such a way, we are ensuring that our papers meet the highest standards of rigour in terms of consideration of ethical issues and impact. Sound technical work is founded on sound theory and ethical/philosophical principles and in covering these areas we are ensuring the highest possible standards for our publications. "*Publication ethics is a crucial part of scholars' efforts to pursue their scholarly practices in accordance with fundamental principles of research integrity* [7].

Further, it is vital that, as designers, we avoid disappearing "*Over the Rainbow*" [9] or down the rabbit hole [3] of our own delirious, intriguing and obsessive thoughts and ideas. In the same way that Kane [4], on his deathbed, realised the importance of the innocence, purity and *love* for his childhood sledge Rosebud, we must gain clarity of what is truly important when designing and developing technological artefacts. Rather than allowing our own desires and personal goals to become drivers, we must look deep inside ourselves and enable ethical values to be the focus. In doing so, we will avoid producing technologies built on sand and:

> "Every craft and every investigation, and likewise every action and decision, seems to aim at some good; hence the good has been well described as that at which everything aims" [1].

PS Apologies for the film references; please excuse an old man (Peter, that is) for thinking of the virtues and values of his childhood.

Declarations

Conflict of interest The authors declare that there are no conflicts of interest involved in the publication of this manuscript.

References

1. Aristotle: The Nicomachean Ethics. Penguin Classics (380 BCE)
2. BCS, The British Computer Society: Code of Conduct. https://www.bcs.org/membership-and-registrations/become-a-member/bcs-code-of-conduct/. Accessed 14 Nov 2022 (2022)
3. Carroll, L.: Alice's Adventures in Wonderland. Macmillan, London (1865)
4. Citizen Kane: Citizen Kane. RKO Radio (1941)
5. Mason, R.O.: Applying ethics to information technology issues. Commun. ACM **38**(12), 55–57 (1995)
6. Plato: The Republic. Penguin Classics (350 BCE)
7. Publication ethics: an initiative encouraging conversations on publication ethics in the humanities. http://publication-ethics.org/. Accessed 14 Nov 2022 (2022)
8. Reiser, R.A., Dempsey, J.V.: Trends and Issues in Instructional Design and Technology. Pearson, Boston (2012)
9. Wizard of Oz: The wizard of Oz. Universal (1939)