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Consequences, Schmonsequences! Considering the Future as Part of Publication and Peer Review in Computing Research

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Research in computing is becoming increasingly concerned with understanding and mitigating unintended consequences of technology developments. However, those concerns are rarely reflected in how we submit, review, and publish our own work. Specifically, in talking about how our new apps, devices, algorithms will change the world, we focus almost exclusively on positive consequences. There have been calls (including from an ACM working group) to require some speculation about negative impacts as part of the peer review process. This workshop will explore how to think about and report potential negative consequences in our papers in a way that's practical, inclusive, and achievable. The aim is to draw on scholarship around creative-yet-grounded speculation about technology futures and to consider how these might be applied to publication and peer review. The workshop aims to inspire the CHI conference and the computing research community to meaningfully consider and act upon the potential negative implications of their work.

CCS Concepts: • **Human-centered computing → Human computer interaction (HCI)**.

Additional Key Words and Phrases: peer review, consequences, publication, futuring, ideation

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1 BACKGROUND

The field of HCI is necessarily concerned with both emerging technology trends [6, 12] as well as considering what their broader societal impacts will be in the future. These concerns underwrite a raft of HCI stances such as Participatory Design [1], Digital Civics [10], and Value Sensitive Design [2], as well as driving the growing influence of methods such as Design Fiction [7], Critical Design [5], Speculative Enactments [3], and Research Products [9]. Such approaches represent a rich variety of methods which are intended to explore, question, understand and help avert possible negative

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outcomes associated with technological innovation. Surprisingly, despite the proliferation of methods concerned with the consequences of research, dedicated tracks at conferences (e.g., GROUP, NordiCHI) and published work calling to consider the implications of technology within publications [8], the potential negative consequences of innovations are rarely considered in peer reviewed HCI research papers, let alone computing and engineering papers more generally. The aim of the workshop is to explore and establish the principle that the potential negative consequences of research should be questioned, critiqued, and discussed as part of the publication and peer review process.

Using peer review as a mechanism to temper negative consequences has been advocated before. Notably, the ACM "Future of Computing Academy" (http://acm-fca.org/) promoted a much-discussed blog post [4], which proposes a change to the peer review process in computing research. In summary, the authors make an argument that computing researchers, in describing their technical work in academic papers, typically frame it unproblematically as a social good; *"rose-colored glasses are the normal lenses through which we tend to view our work."*

"There clearly is a massive gap between the real-world impacts of computing research and the positivity with which we in the computing community tend to view our work. We believe that this gap represents a ***serious and embarrassing intellectual lapse****. The scale of this lapse is truly tremendous: it is analogous to the medical community only writing about the benefits of a given treatment and completely ignoring the side effects, no matter how serious they are."* [4]

Hecht et al. suggest that a simple change to the peer review process may help to mitigate some negative impacts of computing research, "Peer reviewers should require that papers and proposals rigorously consider all reasonable broader impacts, both positive and negative." The proposal is reasonable, feasible, was well received and much discussed, and was published in early 2018, thus you would expect some impact to have filtered through to the most prestigious publications. However, as yet this has not taken place.

There may be a number of reasons why publication committees, peer reviewers, and authors have not taken up the call to consider the consequences of their work more critically as part of the publication and peer review process. For example, in many publication venues, space in peer review papers is limited, and authors may feel they cannot fit an discussion and reflection section in the paper. Thankfully, many venues, including CHI, have recently dropped strict page limits for peer reviewed work.

We argue that the reason that this call has not been taken up more enthusiastically is that we don't yet know how to do it well. For example, on a basic level, should the reflection take place in a required, named section of the discussion in the published paper (similar to a "limitations" section in other disciplines), or should it simply constitute a dialogue between authors, reviewers and programme committee as part of the peer review process? We must also consider more complex unintended consequences of making such a change to the peer reviewing process. For example, Parikh, [11] in a response to Hecht et al, points out the challenge of ensuring fairness in double-blind review processes, how to mitigate between hotly contested ideological positions, and how insider-ism may result in unfair assessments (a point which overlaps to the related topic of sub-field bias, that we suggest should be acknowledged in this discussion). Such complexities are the practical issues that publication committees need to address in order to frame acknowledging potential negative consequences as a requirement.

While programme committees don't know how to frame "reflection on potential negative consequences" as a requirement, authors also aren't trained in thinking this way about their work as part of the publication process. Thus, there is a need for guidance on "how to do" both ends of the process.

The proposed workshop will bring together people interested in improving the publication and peer review process of computing research. We will consider the challenges both for publication committees in framing this requirement, and for authors in responding to such a requirement. We are interested in understanding a) what kinds of tools and

materials are necessary to support authors in thinking through potential negative impacts of their work, b) how to frame this requirement as part of the peer review process, c) how to capture and report the outcomes of such a process, and d) the challenges of responding as a peer reviewer.

2 ORGANIZERS

Miriam Sturdee is a Research Fellow in the School of Computing and Communications, Lancaster University, where she investigates visual and creative methods for the advancement of computer science, with a particular interest in the design of novel interfaces. She has previously organised workshops on Sketching in HCI (DIS 2017) and art and tangible interaction (CHI 2020).

Joseph Lindley is a Research Fellow at the Imagination Lancaster research lab where his work promotes the use of Design Research to explore and understand the social implications of emerging technologies. He is a member of the ACM Future of Computing Academy, contributes to the IEEE Working Group for Responsible AI Licensing, and recently co-authored a report for the UK Arts and Humanities Research Council on AI and Data.

Conor Linehan is a Senior Lecturer in Applied Psychology at University College Cork, where his work takes critical perspectives on the design of games and other social media to support education, health and behaviour change. He has previously organised CHI workshops on Design Fiction (2014) and political values in Design (2017).

Chris Elsden is a Post-Doctoral Research Associate in Design Informatics at the University of Edinburgh. His empirical and speculative design-led research addresses future experiences of datafication, metrics and most recently FinTech and blockchain technologies. He has published extensively on speculative methods, and has previously led the organization of successful HCI workshops, 'Beyond Personal Informatics' (CHI 2015), 'Quantified Data and Social Relationships' (CHI 2017), 'HCI for Blockchain' (CHI 2018), and 'Designing for Money and FinTech' (DIS 2020).

Neha Kumar is an Assistant Professor at Georgia Tech. Her research lies at the intersection of human-centered computing and global development. She has training as a computer scientist, designer, and ethnographer and her research engages feminist perspectives and assets-based approaches towards designing technologies for/with underserved communities. Neha is chair of the ACM's Future of Computing Academy and sits on the SIGCHI Executive Committee as Vice-President at Large.

Tawanna Dillahunt is an Associate Professor at the University of Michigan's School of Information. Working at the intersection of human-computer interaction; environmental, economic, and social sustainability; and equity, her research investigates and implements technologies to support the needs of populations who have been historically excluded or left out. Tawanna was a co-author of the CHI 2020 panel Transparency in Qualitative Research: Increasing Fairness in the CHI Review Process and co-organized the CSCW 2017 workshop Reflections on design methods for under-served communities.

Regan Mandryk is a Professor in Computer Science at the University of Saskatchewan, and a Canada Research Chair in Digital Gaming Technologies and Experiences. She investigates novel ways of understanding game players and their experiences, in particular exploring the social benefits of gaming and how gaming can augment digital health technologies. Regan is chair of the CHI Steering Committee and is the Adjunct Chair for CHI on the SIGCHI Executive Committee.

John Vines is a Professor in the School of Design at Northumbria University. His research focuses on the ways diverse participants can be meaningfully involved in collaborative design activities, with a particular interest in enabling non-designers to explore the consequences of emerging technologies. He has co-organised a series of workshops at CHI

(2013-2018) on understanding the ethical complexities and unexpected harms that come from HCI research conducted with vulnerable populations and in potentially sensitive and contested settings.

3 WEBSITE

The website will be used both before and after the workshop as a repository for resources related to the theme, as well as promoting the workshop and hosting the Call for Participation (CfP). URL TBD.

4 PRE-WORKSHOP PLANS

This workshop will provide a focus on a critical issue for the HCI (and broader computing) research community and result in a viable pathway for using the peer-review process to support more responsible computing. To that end we will create a relevant Twitter account and blog/website which will be used to collate resources, document the workshop's progress, as well as being a repository for the workshop's materials. Upon acceptance we will publicise the workshop via key social channels and mailing lists, in particular Twitter, the *CHI Meta* Facebook group and *chi-announcements* mailing list. We will utilise the visibility of the ACM Future of Computing Academy blog – which was historically used to raise awareness of this issue – to further publicise the workshop. In addition to attracting participants we anticipate this will initiate discussions relating to the theme which we will capture via blog posts on the website.

The CfP will ask interested participants to complete a form on the workshop blog comprising of two key components; a) they will be asked to upload a "reference paper" of their choosing, and b) they will complete a text box that simulates a field in the manuscript submission form on the PCS manuscript management software. This text box (hereafter, the "PCS box") will ask submitting authors to reflect on potential negative consequences related to their "reference paper." Participants will be selected for the workshop based on their submissions.

5 WORKSHOP STRUCTURE

The workshop will take place entirely online. The workshop structure will be formed of three 90-minute sessions, each separated by a 15 minute break.

1. Welcome & Introductions Conveners and participants will introduce themselves, and short presentation of examples of good, bad and unexpected consequences of computing research. *(15 minutes)*
2. What's in the Box Participants read out the "PCS box" contributions made at the submission stage, and reflect on challenges in thinking and writing about these. *(30 minutes)*
3. Peer Response Groups will peer review the "PCS box" contributions (awards will be given for *Gloomiest, Most Optimistic, Most Entertaining*, and *Most Likely to Result in Paper Rejection*). *(30 minutes)*
(Break 1) *(15 minutes).*
4. Futuring Overview of recent scholarship on methods that support people in thinking about the future. *(30 minutes)*
5. Approaching Consequences – An Ideation Activity Prototyping what we need to ask people to do before filling in the theoretical 'box' in PCS. For this part of the workshop, participants and conveners will break into small groups of around 4-5. They will spend 15 minutes deciding on the focus and methods for their three prototyping sessions. Subsequently, they will spend three 15-minute periods prototyping, focusing on a combination of, for example, visual methods such as sketching or storytelling; design fiction; critical design, co-design and so on. *(1 hour)*
(Break 2) *(15 minutes).*
5. Plenary Discussion: Challenges for authors Discuss and identify the challenges for authors in considering

consequences in their work. *(30 minutes)*

6. Plenary Discussion: Challenges for Peer Reviewers Discuss and identify the challenges for peer reviewers in responding to "PCS box" contributions. *(30 minutes)* **7. Plenary: Presentation & Synthesis** The workshop group will come together to discuss the previous session, from which we will generate a set of principles for how to consider the future in computing research, and identify a road-map for moving forward, post workshop. We will make use of the services of a professional visual facilitator to record the main findings from the workshop, and make this document available publicly on the website after the event. *(30 minutes)*

Note: Online Delivery: The workshop will take place entirely online, and facilitated by a system called "Gather". Gather is an alternative approach to video chat that uses characters in a 2D environment, along with a proximity heuristic, to allow for more natural video-based conversations. In particular, it allows breakout groups to form and reshape organically during workshop activities, and in the gaps between scheduled activities participants can easily talk to each other privately or in small groups while remaining visible and 'part' of the broader workshop space (replicating how 'coffee break chats' tend to work offline). Gather will act as the virtual 'space' that the event takes place within, with additional tools such as Miro (which seamlessly integrate with Gather) being used to facilitate synchronous collaboration around workshop tasks.

6 POST-WORKSHOP PLANS

The workshop addresses a crucial and timely issue, and has potential for immediate impact on the CHI conference, broader SIGCHI community, not to mention the broader computing research community. In order to realise this potential we will utilise the expertise within the organising group to ensure that the outcomes of the workshop are in a format to be appropriately shareable with relevant organisational units (e.g. the CHI Steering Committee, the SIGCHI Executive Committee, the ACM Technology Policy Committee). We will leverage the notable expertise within the organising group to establish a community-initiated working group to feed into the CHI Steering Committee; produce summary reports to be fed back to the SIGCHI Executive Committee and ACM Technology Policy Council; collate and curate the workshop's activities and findings for publication (in the first instance via our website and by negotiation via the ACM Future of Computing Academy blog, Communications of the ACM and the ACM Interactions magazine).

7 CALL FOR PARTICIPATION

When John Connor said *"The Future has not been written. There is no fate but what we make for ourselves"* in *The Terminator*, was he referring to the wonderful power of peer review culture? Perhaps not, but he could have been.

As technologists we have a profound responsibility for what our research and innovation achieves. In this workshop we will explore how to refine the peer review process in order to help promote innovative research, whilst also tempering and mitigating the potential negative consequences.

The workshop will centre on the propositional that authors and reviewers should consider the negative potential arising from research at the point of submission/review. In order to participate in the workshop we invite you to cite an existing publication and to submit a "Consequence Statement" which explains what you consider the potential negative implications of the research to be. During the morning of the workshop we will present and discuss each other's submitted Consequence Statements. Based on the morning's discussion, in the afternoon we will use creative methods to explore what core principles and practical concerns a revised approach to peer review will need to take account of.

Our primary selection criteria will be based on whether submissions (comprising cited publications and an attached Consequence Statement) will stimulate a lively debate around the practicalities of updating the peer review process such that it considers negative consequences.

It is mandatory that for each accepted submission at least one person will attend the workshop. More details are available at: http://designresearch.works/schmonsequences-workshop/.

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