
RepliCHI – The Workshop

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Abstract

The replication of, or perhaps the replicability of, research is often considered to be a cornerstone of scientific progress. Yet unlike many other disciplines, like medicine, physics, or mathematics, we have almost no drive and barely any reason to consider replicating the work of other HCI researchers. Our community is driven to publish novel results in novel spaces using novel designs, and to keep up with evolving technology. The aim of this workshop is to trial a new venue that embodies the plans made in previous SIGs and panels, such that we can begin to give people an outlet to publish experiences of attempting to replicate HCI research, and challenge or confirm its findings.

Author Keywords

Evaluation, Methodology, Replication

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

Inherent in the model of publishing research findings is to describe how research has been done such that others can try to reproduce the phenomenon, whether to apply it in real world case studies, or to explore the phenomenon in more detail. In many disciplines, doing so is important. In medicine, for example, people try to replicate the success of treatments many times, such

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that the medical community can trust in their validity. Such replicability of published research findings, therefore, is often considered a cornerstone of progress; replicating something adds validity to the finding. For this reason, therefore, many other disciplines, such as psychology, physics, and medicine either already encourage replication or are making significant strides towards encouraging it [1,3,7].

Unlike many objective research domains, replication is perhaps more challenging in HCI, as the technology, and the social acceptance of it, that we study change rapidly. Much of our research may, therefore, be less objective or may be more susceptible to variation in different contexts. However, this itself is motivation to better understand HCI findings beyond (to use an exaggerated example) a single study of Computer Science undergraduates using a new prototype in a convoluted task. With replication, we can see different people in different cultural contexts experiencing the reported benefits in a range of tasks. The RepliCHI efforts in the CHI community, therefore, are primarily focused on learning about HCI Replication, and where it has a place in our community; especially given our diversity, covering art, science, and much more.

Forms of Replication

Four common notions of replication, which have emerged from RepliCHI events and discussions so far, and from other disciplines, include:

Direct Replication

Direct Replication consists of attempting to entirely replicate a study or system, using the same format and with the same tools, and experimental protocol. The aim of direct replications is often to replicate a specific

finding. Direct Replication is often driven by the aspirations of strong science to confirm that results are true, are not created by an unseen bias, or that they apply in different contexts (geographic, cultural, topic, task) to the original study [2]. This method is often used as a teaching method for postgraduate students.

Conceptual Replication

Conceptual Replications are systems and studies that focus on a certain principle or phenomenon and confirm findings using alternative methods. Of the three approaches, this is most common in HCI, in that multiple studies demonstrate the principles of direct manipulation. Many instances, however, are post-hoc reflections of their findings in the context of prior work. Through this approach we surmise heuristics about best practices for design or for evaluation.

Replicate & Extend

Replicate+Extend is a common research method in which people first reach the level of prior research before investigating it further. This may involve reproducing a phenomenon before specifically investigating it further, or by building on the findings of the study. This form of research is often essential in understanding a form of interaction, after learning about the limitations of an initial approach, for example. However, Replicate+Extend is associated with the high risk of being described as 'incremental', and being rejected from prestigious peer-reviewed venues.

Applied Case Studies

One common form of replication is application - a special instance of conceptual replication. If HCI research produces a finding, and its application in real world contexts confirms it, then case studies are a form

of replication. It is perhaps often one of your core desires that research findings are applied in real world contexts. Case studies of applying research findings, by practitioners in real world settings, are highly desirable, and this is an opportunity to engage with practitioners.

Benefits of Replication

To Our community - Part of the maturity of a community involves reflecting and examining what has come from within it. We are currently driven towards novelty and impact, but part of impact is validating and understanding contributions. Having an archive of research findings that reflect directly on prior work would be highly valuable for our community.

To Practitioners - With an ever growing focus on integrating research and industry in within the HCI community, we can increase confidence in HCI findings by validating findings, whether our own or the findings of others. We can increase industry confidence, and thus our perceived value from outside our own community, of the work we together perform.

To Teaching - Replication of studies is commonly used in other disciplines as a teaching method for undergraduates or new postgraduate students. Trying to replicate a published study a) helps students to learn what is involved in performing a proper study, and b) reinforces the notions of properly reporting methods in papers (as they learn what is not reported in the papers describing the studies they have to replicate).

The aims of the workshop

The aim of the RepliCHI workshop is primarily to pilot what could be the grounds a secondary publication venue for future HCI events. The outcome of 2 annual

discussions through a RepliCHI panel [5] and a RepliCHI SIG [6] was a proposal for a venue that helps us as a community to:

- a) Proactively and considerately discuss the reproducibility of HCI findings at CHI.
- b) Publish, at least in an extended abstract or workshop format, insights from replicating, confirming, and challenging HCI research.
- c) Create an archive of experience reports that, similar to the current attempt in psychology¹ researchers can visit to see if findings have been reproduced. Such an archive also has the benefit of, over time, highlighting research that our community deems as important enough to replicate or of sufficient interest to investigate further.

Beyond piloting the nature of a future secondary HCI venue, this specific workshop aims to initiate discussion of replication attempts, and begin the process of understanding the challenges involved in replicating HCI research.

The issues to be addressed in the workshop

Several key issues will be discussed in the workshop: 1) the challenges researchers face when replicating HCI research, 2) the issues of privacy and proprietary resources for studies, 3) the kinds of information that are typically not available in publications, 4) the common reasons for differing results, 5) the possible issues around not being able to confirm results, 6) the cost benefit ratio experienced, especially when simply confirming results, and 7) the benefits people have experienced using replication as a teaching method.

¹ <http://www.psychfiledrawer.org/>

We expect all of these issues will arise through the examination of several case studies. The format of the event is planned such that submitted case studies will be co-presented by both the original and replicating researchers, where original authors will be invited as guests to participate in the workshop. While the presentation of case studies helps us to understand the challenge and nature of replicating research, the co-presentation with original authors helps us to explore the broader community issues of challenging the work of others, or having your work examined by other researchers. This particular issue has arisen, most recently, in social psychology [3].

Finally, this pilot workshop is proposed as a two-day workshop, such that while the first day addresses issues about replication, the second will address issues about the format of the venue, and how well it might facilitate the community towards adopting replication techniques more broadly. The experience of discussing case studies for a day, should also help us in the second day to consider how well the notion of replication applies to different forms of research in the HCI community, whether it is scientific, artistic, or ethnographic, etc.

Conclusions

While replication of research is common practice in many disciplines, the concept of replication or looking back and re-appraising research feels almost an alien concept in the HCI community. The primary aim of this workshop is to run, for the first time, a venue that explicitly invites experience reports and allows people

to openly discuss attempts to replicate research in a free and open format. The workshop, therefore, will be the first instance of creating a forum to address replication explicitly, pave the way for consistently facilitating the discussion of replication in HCI, and continue to encourage a culture-shift to adopting replication as a core part of our community.

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