# "Un-Googling" Publications: The Ethics and Problems of Anonymization

**Irina Shklovski**

IT University of Copenhagen

Rued Langgaards Vej, 7

DK-2300, Copenhagen, Denmark

irsh@itu.dk

**Janet Vertesi**

Department of Sociology

Princeton University

jvertesi@princeton.edu

## Abstract

Digital tools of research dissemination make scholarly publications accessible to the public at large through simple search engines. As a result, the users that we study, interview, and cite may be at risk of exposure to unwelcome types of scrutiny and scholars must grapple with challenges to the ethics of exposure of our research participants. We present one approach to anonymization of research results with search engines in mind, which we call *un-Googling*, that we have developed to minimize risk to our participants. We discuss the considerations that this approach raises and pose a challenge to the HCI community to take up this discussion not only as an ethical consideration but also as a socio-technical research and design opportunity.

## Author Keywords

un-Googling, research ethics, exposure, anonymity, publication.

## ACM Classification Keywords

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

## General Terms

Human Factors

## Introduction

The tools of research dissemination are changing with ever more publication venues putting content online where this content is indexed, cross-referenced and made keyword searchable [12]. As our Internet-based search tools continue to improve, findings reported in publication are made locatable and available to scholars beyond the rich educational institutions of the Western world. As a side-effect, publications of our research efforts can be served up by helpful search engines to people who weren't searching for scholarly publications, but simply keyed in the right combination of search terms. Such serendipitous encounters can be beneficial, but they can also put our studies and our participants at risk by exposing them to scrutiny.

At the same time, the HCI community is engaging ever more closely with users in a range of unexpected locations and sensitive contexts. Studies of communities or users whose perspectives have rarely been heard in HCI bring new design opportunities. They may present a case of "extreme users" whose specific needs demand that we broaden our design considerations. These users may inhabit a variety of power structures born of historical contingencies and socio-economic concerns. They may be Thai orphans [23], Nigerian spam artists [7], or homeless people in the United States [15] who engage with global systems from powerless socio-economic or political positions. These users' access to technologies of interest is often uncertain, inconsistent and at times even illegal.

The ethics of encounter and disclosure of people in unstable places or difficult situations has consistently challenged scholars in anthropology, sociology, and a range of other fields to address ethical questions through developments in methods and writing techniques. As the digital tools of research dissemination improve, their implications raise new practical, ethical, methodological and publication concerns among researchers and practitioners.

In this paper we contribute to the discussion of ethical practice in HCI [8] by considering how the digital tools of research dissemination pose problems for our ongoing engagements with communities online and offline. We suggest an approach to anonymization aimed specifically at protection from search-engines that we call "*un-Googling*." Considering our own attempts to un-Google our publications reveals several issues already at play in our research dissemination practices, as well as the limitations of this approach. We then pose a challenge to the HCI community to take up this discussion not only as an ethical consideration but also as a socio-technical design opportunity.

## The Challenges of (Digital) Anonymization

Anonymization has long been an issue of discussion in anthropology and sociology, among other fields (especially in consideration of "communities at risk" who were the subject of qualitative study [22, 24, 25]). But much as digital archiving tools are part of a shift in memory practices in the sciences [5], the rise of digital technologies for dissemination of research results is reconfiguring a classic tension in human subjects research. One of the major concerns in ensuring the safety of the research participant is the preservation of anonymity of the research subject in publication of research results. Yet the reality of anonymization of qualitative and especially ethnographic findings has always been questionable, primarily achieved through

**A Note on Our Own Ethical Conduct**

Both authors followed the requirements of Institutional Review Boards (IRB) of the affiliated North American universities, acknowledged and adapted to the conditions and expectations of the populations under study. Study participants in both studies were presented with study information sheets or informed in other ways about the goals of the research, participants' rights, and steps that would be taken to protect participants' confidentiality in the course of data collection, storage, analysis and publication. To minimize potential for exposure no signed informed consents were collected. Study participants retained control over all research-related encounters. Their statements were either written down or recorded only with their permission. They were also aware of the researchers' intent to publish results of their investigation.

obscurity of publication outlets, remoteness of field sites and the length of time elapsed between data collection and publication [20]. Hyperlinks and powerful search algorithms make digital materials visible, combinable, traceable, and ready-to-hand. This has ensured the rapid and wide dissemination of research results and made obscure findings available well beyond the broader community of researchers and the interested public. While laudable in some instances, such technologies can also cause participants harm.

Many disciplines have augmented their codes of research ethics [1, 2] to address special issues in internet research. The Ethics Guide produced by the Association of Internet Researchers [10] or the Psychological Research Online report [14] detail issues of informed consent, rules of engagement in the field, the care for and use of information disclosed by the participants, and best practices for data anonymization for publication, and anonymization in the case of publicly available online speech [4,10,12]. However, such guidelines do not yet deal with the question of search engine visibility and access. Where past practices to ensure anonymity often relied on privacy through obscurity or the undiscoverability of individual terms or phrases, participation in online libraries guarantees that obscurity is no longer an option.

We have encountered ethical dilemmas connected with publication of research results in our own research in radically different contexts.

*Example 1: Research in Sensitive Contexts*
The first author conducted HCI research in a country where the authoritarian government engaged in significant surveillance and blocking of Internet access

for its citizens [18]. In such contexts participation in technical communities may be limited to the economically privileged in society, but can also articulate an implicit or explicit anti-government position [16]. Findings revealed a detailed picture of the threat of surveillance and the practices of regular users in this context, highlighting the external structural conditions relevant to how and why users contribute content online as well as the practices users engaged in to manage their exposure to the whims of the state. The local IT community under study was relatively small, visibly connected online, and traceable, meaning that individuals could be identified just by the sentiments they expressed rather than through direct quotes that were translated and used as supporting data in the paper. While the author could not prevent direct state interest in work published under her name, accidental discovery of this work by the power elite of the state in question seeking sentiments about blocking and surveillance online, could result in legal and personal damage to her study participants.

*Example 2: Not just "out there"*
Risk to subjects does not only happen in developing nations under authoritarian regimes. Publishing results concerning technology companies or scientific collaborations may affect financial support, status, stock options, or public support. The second author has studied such environments in the public sector with an eye to the challenges of coordinating work across large and highly distributed teams, including the delicate negotiations over shared resources [21]. Exposure of these internal issues through publication however, could impact the perceptions of these organizations and groups for stakeholders outside the field of HCI. While the unique specificities of the sociotechnical

## A Note on Un-Googling

We did not coin the term "un-Googling." A quick Google query will surely provide pointers to many mentions, albeit to personal reputation management. However, we found that reference to the world's largest search-engine was the most concise way to get across the concept of removing data from a publication to affect associations potentially made by search-engine algorithms, thus limiting the probability that our papers would be retrieved given a limited set of predictable search terms.

Note that un-Googling does not necessarily imply a technical solution. As each search-engine uses a proprietary algorithm to index and search the web, it is impossible to ensure 100% success in an algorithmic response. Thus our practice described here is necessarily a qualitative process of identifying potential search terms and limiting exposure by removing major contextual information to limit obvious associations.

environment were important to understanding the team's practices, revealing too much detail could result in particular groups or individuals becoming too easily traced, impacting public perceptions of the high-profile companies, universities, and agencies involved, or the outcome of competitive bids for contracts.

Whether intentional or not, making certain kinds of practices public can be a political act, even if these practices seem mundane or benign to the academic community. When we present the practices we observe to HCI audiences for the purposes of research and design, we also potentially expose the people who participate in our studies to other types of scrutiny. As a research community attuned to issues of data integrity and the rapid increases in data availability [3], we must consider the impact of unprecedented public access and discoverability of published results. This is not an issue of "privacy" but one of accountabilities of research practice [19]. How might we share research insights with the HCI community while protecting participants and the integrity of ongoing projects from accidental discovery?

## Un-Googling Publications

Search engines have an enormous influence on what information people, organizations and institutions might encounter online because they route search traffic based on opaque proprietary algorithms. However, the basic function of a search engine – crawling, indexing and search – are well known [6] and suggest two important points. First, anonymization relies not only on removal of relevant names but also on limiting the number of unique features specific to the people or context in question [13]. Second, even if the document itself is perfectly anonymized the individuals or

communities mentioned in it can still become identifiable over time if it is linked to other documents that do not perform the same level of anonymization [6].

We therefore focused our anonymization efforts on limiting the papers' findability through a search-engine query by removing references that could potentially serve as direct or indirect identifiers: names of participants, contextual details of the environments where ethnographic encounters happened and the country or collaboration context where the research was conducted. After all, there are plenty of authoritarian governments in the world that engage in surveillance and blocking on the Internet. There are now quite a few highly distributed science teams as well. We also removed any citations to resources that mentioned the country or the collaboration in their title or content despite their potential importance in substantiating our claims. After all, search engines index titles as well as content and references.

The goal of this kind of un-Googling was not to hide the country or the collaboration under study from the academic community. This would have been impossible as anyone who knew the authors and were familiar with their recent research could easily identify the country or collaboration in question upon discovering the papers. The papers were anonymized with a simple goal in mind: to prevent individuals outside the academic community, more specifically, the power-elite of the country in question or the curious public, from accidentally coming upon the paper by inputting relevant search strings -- 'country name' and 'internet blocking' or 'the collaboration' and 'government agency' -- into an internet search engine. While the papers

remain freely accessible to the public at large, we hope that they are less likely to be found through specific keyword searches that may result in harm to the individuals who participated in this research. We also realize that this is not a permanent solution, as these papers will likely eventually get linked with the country or scientific collaboration in question through links and citations in other papers and by other authors.

*The Choices in Un-Googling*
This kind of anonymization brings up issues far beyond selecting pseudonyms. Un-Googling one's paper requires making specific decisions about one's academic writing and analysis. We were forced to confront otherwise taken-for-granted assumptions in our sites, our analysis, and our academic community.

Un-Googling forces the question of nomenclature: exactly what's in a name, and what we learn from naming versus not naming something.  For example, when members of our research team attempted to remove the name of the scientific collaboration from their paper, they faced a conundrum but also an opportunity. What should they replace that name with? On some occasions, the name of the collaboration meant, "the team"; on other occasions, it meant "the software"; and in still others, it meant "the hardware." Using the collaboration's name as members did, to refer to all three aspects of the collaboration, was obscuring some tricky sociotechnical work that it soon became the paper's very job to undo and probe further.

Names are also critical for validation, especially among our academic community. For example, the internet research was performed in a relatively under-studied area of the world and offered a relatively rare glimpse of technology use in a restrictive state. While revealing the country name could have been detrimental to research participants, it likely would have made the contributions of the paper that much more interesting and compelling to the academic community. This was in fact a concern expressed by one of the paper's anonymous reviewers. Anonymizing the country in question limited what we could reveal about the participants and the political context in which they lived. Specific details and idiosyncrasies of a national context could easily identify the country under study. However, the very need for such naming of places and identification of specific contexts reasserts the continued importance of place in HCI research, even in the digital sphere [9]. Naming, after all, presents opportunities for points of comparison, for continuity in a body of work, for contrast with other sites, and for evaluation of claims.

We note that these choices inherent in un-Googling are not limited to qualitative research projects, but affect quantitative examples as well. The rise of the big data has problematized this further. In most cases large datasets are very difficult to anonymize [17, 26], as the existence of too much detailed demographic or auxiliary information can lead to de-anonymization. How much detail needs to be shared for empirical reasons and how much becomes detrimental to anonymization is an important consideration, but it also requires addressing sincerely the requirements of the research question and the process of research validation.

*The Ongoing Work of Un-Googling*
Un-Googling does not end at the point of publication. For example, in order for this practice to be successful, the first author has had to meticulously monitor when

and how she mentioned the paper, her name and the name of the country together in a range of documents. Putting this paper on her CV along with other papers that do mention the country name and publishing that document on her university website would eliminate any benefit gained from the initial un-Googling. Mentioning this paper as part of the original research project on the authors' website would undo the anonymization as well. The care with which this paper must now be handled is an on-going process rather than a one-time issue to be solved.

Research within socio-technical communities presents awkward challenges. Ongoing connections with our communities of study through Facebook friendships, or live Twitter feeds of our research talks may put the researchers themselves in a difficult situation. Whatever the level of involvement with the users and communities during the study, the researcher and the participants can remain virtually connected well past the duration of the research project. In fact, such digital connections may appear after the interviews and observations have been completed. Many of the participants in both our studies were highly educated individuals imminently interested in the findings the authors published. We continue to receive requests for papers and inquiries about our future activities. The question then is, can our un-Googled papers be shared or will that once again undo our efforts?

There are many anonymization options, including anonymizing authorship along with the rest of the relevant information [13]. While such papers would achieve the goal of minimizing risk to participants, the reality of academic evaluations of research careers precludes this route. The insights we want to publish

are, we hope, important for a small community of professionals who can build on such a work, but these same professionals evaluate findings in part based on the reputation of the authors, their educational institutions or the funding bodies that supported the work alongside the content presented in the paper. Funding bodies that support the work also want to see publications as a kind of deliverable to evaluate the current and potential success of the collaboration.

## Discussion
In the process of attempting to un-Google our work, we faced some discomfiting questions about the role of ambiguity in reporting research results, the need to write for (or against) a database, and the importance of managing conflicting accountabilities.

*Ambiguity as a Resource for Research*
Papers reporting on ethnographic work do not aim to produce generalizable results. Yet the reading of un-Googled papers can result in unintended impressions of generalizability. After all, when reading about "the Country" or "the Collaboration" it is easy to forget that these refer to very specific contexts and begin to attribute these insights to any "country" or any "collaboration" that marginally fits the necessarily general description. As ethnographic data are generated through encounters between ethnographers and the settings they traverse [8] writing an un-Googled paper requires the authors to articulate their own position and their own assumptions vis-à-vis their field site with much greater detail.

This kind of writing triggers an additional analytical process, where we must evaluate the empirical importance of detailed descriptions in light of their

potential for de-anonymization and exposure. As *un-Googling* shifts the focus of concern more strongly toward the very thing that is being anonymized, this forces a greater level of articulation of assumptions and a concerted effort to balance detail with ambiguity. We therefore suggest that un-Googling can not be done lightly, once the paper is written, but requires that such a decision is taken at the outset, as it will shape the analytical process as much as the writing itself.

*Writing for and against a database*
In our attempts to outsmart a search engine through in our writing, we first had to deploy our knowledge of the relational structures embedded in the information architectures in question. That is, how do search and page ranks get compiled on different systems? Which terms would be more likely to accidentally lead a naïve (or hostile) searcher to our paper, and which would be less likely to do so? Would there be any likelihood that country or collaboration names would be linked to the published works within either one or two clicks? Much like Brubaker and Hayes have discussed resistance and conformity to the structures of systems like Craigslist or Facebook [*], it was in thinking like a search engine (whether Google or the ACM Portal) that we could articulate how we might write *against* such databases.

But in writing *against* the database we began to realize a host of practices that were always already present in our work. After all, we write *for* databases all the time. We deploy a range of techniques, tools, and conventions to make our work disseminable and locatable to our colleagues. These include the strategic use of keywords and classifications, the formatting of references for automated cross-referencing in online databases, the production of meta-data, and even the

phrasing of titles and abstracts to attract readers or to clarify our contributions. Equally important is confronting the considerable degree of face-work [11] inherent in our scholarly publishing, as papers counts are automatically generated according to author name. For better or for worse, such practices have suffused our writing process. Writing against the search engine, then, not only requires something of an infrastructural inversion [4], thinking through the information architecture that the search engine assumes and strategizing forms of creative resistance. It also requires confronting the role of one's own scholarly work (papers and other traces) in the crafting of research identity, trajectory, and relationships. Making changes to our ethical treatment of subjects requires making changes to our treatment of authors as well.

*Academic Accountabilities*
The ethical imperative to protect our research subjects requires us to make tough choices, to write against databases instead of for them, and to resist or even sabotage the 'cult of the author' inherent in academic search systems. To guard against throwing out the baby with the bathwater, however, we suggest that a useful guideline for making strategic decisions in the process of un-Googling our writing may be to deeply consider our academic accountabilities.

A shift to an "accountabilities" framework has already been suggested in other areas in HCI [19], suggesting that information sharing can only be understood in relational, not absolute, terms. Similarly, taking research ethics seriously in the era of big databases and searchable terms requires reconsidering the relational networks and accountabilities inherent in academic research. What is it our responsibility to

share, and with whom and when? As researchers, we may be keen for our colleagues to hear of our results, or to show evidence of a productive collaboration. But certainly, our responsibilities to "share" with "the public" are differentially defined given our institutional locations (private company or public university), or our funding agencies (foundation, national foundation, or competitive corporation). Such degrees of difference are not currently reflected in our online tools, but might be.

## An Ethical Issue or a Design Opportunity?

Inadvertent production of communities at risk through publication is clearly not the exclusive purview of HCI research, but is common in all types of research that directly engage with human subjects. While the discussion above brings up questions and issues that no doubt need to be discussed in the HCI community, the same ethical concerns can be seen as a substantial socio-technical issue that represents a legitimate research opportunity.

HCI has long been aware of the importance of ethical considerations to research practices [3]. Ironically, as we improve technologies of search discovery and fight for open access to the outcomes of our publicly funded research activities, we also complicate the ethical considerations of our research practice and the reporting of results. Research conducted on the Internet must confront the fact of archived digital traces of online interactions, often easily discoverable through search, and of the legal complications of Terms of Use [27]. This presents new challenges to the ethics of exposure. In qualitative work, complete anonymization is impossible precisely because of the level of interpersonal involvement required. The

challenge now is not only how to present one's field site to an academic community but also how to balance revealing the necessary specificities of the site with the needs for anonymization.

No matter the goal of a research inquiry, the people such research might engage as participants are always embedded within political and institutional structures specific to their situation. Scholars themselves are embedded in their own configuration of such structures from granting bodies, to career trajectories, to institutional obligations. Publication of results is a performance necessary within the institutional structures of scholarship. The question then becomes, can we satisfy the demands of our obligations while not only treating the institutional dependencies of our participants with respect, but also resolving the conflict of reported detail with the potential outcomes of that reporting. If we were to assume that our publications, while oriented toward specific interlocutors, are read by a much broader audience, how might we organize the practice of reporting of results? What are the socio-technical opportunities for design addressing these eventualities?

We thus pose a challenge to the HCI community to take up this discussion not only as an ethical consideration but also as a socio-technical design opportunity. After all, unlike many of the other human-subjects oriented fields, such as for example anthropology, psychology, sociology, communication studies and many others, the field of HCI possesses the right combination of expertise to not only consider the ethical implications of publication of results but also to address this mounting concern through a combination of design practices.

At the same time we want to caution against seeing this issue as purely in need of a technical solution. Once a paper is published authors loose control over how it might be presented, cited or discussed elsewhere. The readers may guess the anonymized entities (whether correctly or incorrectly) and discuss these in other venues or contexts. Any un-Googling then is only temporary and perhaps requires not only a technological solution but also a change in our research culture. This suggests not only possible implications for design, but also for research and writing methods as well.

## Acknowledgements

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