The University Of Sheffield.

This is a repository copy of *Conducting Information Science research during pandemics : experience and reflections of the Information Retrieval Research Group in Sheffield*.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/174892/

Version: Accepted Version

White Rose
university consortium
Universities of Leeds, Sheffield & York

eprints@whiterose.ac.uk
https://eprints.whiterose.ac.uk/

Conducting Information Science research during pandemics: Experience and Reflections of the Information Retrieval Research Group in Sheffield

Frank Hopfgartner[0000-0003-0380-6088], Morgan Harvey[0000-0001-5504-2089], Sophie Rutter[0000-0002-3249-5269], Suvodeep Mazumdar[0000-0002-0748-7638], David Cameron[0000-0001-8923-5591], Alessandro Checco[0000-0002-0981-3409], Caitlin Bentley[0000-0002-2602-601X], Ziqi Zhang[0000-0002-8587-8618], and Paul Clough[0000-0003-1739-175X]

Information School, University of Sheffield, Sheffield, United Kingdom,
{f.surname}@sheffield.ac.uk

Keywords

Research output; user studies; home office; information science

EXTENDED ABSTRACT

The Information Retrieval Research Group of the Information School of University of Sheffield has a long tradition of conducting research on how people find and use information. Drawing together a multidisciplinary team of researchers from computer science, information science and human computer and information interaction backgrounds, the group approaches this from different perspectives and using various methodologies. Current research is informed by four core areas of activity, including (1) the study of human computer and information interaction (e.g., in the Information School's iLab[1]) to understand user cognition and behaviour with respect to the interactivity involved in information access, use and re-use; (2) the development of novel solutions to information access problems, ranging from the development of specific algorithms to the design of entire prototype systems, with a particular focus on web-scale systems and algorithmic bias; (3) the study and design of methods and techniques for evaluating information access systems for a variety of applications and search scenarios; and (4) the development of novel methodologies to study dynamics of social interactions on social media platforms. Given our prominent focus on user-centric research, it comes as no surprise that our research was strongly impacted by the national lockdowns enforced due to the COVID-19 pandemic. The reasons for these impacts were numerous: the sudden need to move whole programmes of study online took a lot of time, which significantly reduced the amount that could be dedicated to research; caring responsibilities took priority; working from home meant that we no longer were able to communicate with each other in the same way that we got accustomed to over the years. At the same time, we lost access to valuable resources such as the iLab and other hardware, and, most importantly, access to participants to conduct our user-centric studies. This led to a significant shift in the way we conducted research from predominantly "in-person" methodologies to virtual approaches. While research on

---

[1] https://www.sheffield.ac.uk/is/research/facilities#iLab

algorithmic challenges (e.g., [Zhao, 2021]) and the analysis of secondary data (e.g., [Bartliff, 2020, Zhang, 2020]) could be conducted without major issues, for other studies we could rely on online crowdworkers (e.g., [Paramita, 2021]) to gain user input. The move to online had uneven impacts on broadly-similar data-collection activities, such as collaborative workshops; while some methodologies could be replicated via video conferencing with good success (e.g., LEGO Serious Play workshops, LSP) others (e.g., Design Thinking workshops, DT) faced additional challenges [Cameron, 2021]). Despite both types workshops requiring shared efforts at creating physical artefacts for group discussion, differences in their success in moving online may be a result of building many individual artefacts (LSP) vs contributing to a single shared artefact (DT) and the capacity for these activities to stimulate active discussion online.

Some planned research has been put on hold indefinitely as the in-person aspect is integral to the development of the work (e.g., testing outcomes from online research for human-robot interaction concerning people's intentions to use a robot [Cameron 2021b] and examining these in practice).

Moreover, the global shortage of electronic chips, mainly triggered by the COVID-19 pandemic, caused large delays on projects that rely on the design of new hardware (e.g. [Checco 2020] and [Abbott 2021]). At the same time, we also experienced some positive effects of an academic world gone virtual. Conferences and winter schools (e.g., [Kleanthous, 2021]) were all held online and it was easy to register and tune-in to talks without leaving the work space and to "attend" regardless of where the event had been intended to take place. For example, we had the opportunity to experiment with virtual spaces (e.g., gather.town for the organisation of the HCOMP 2020 and of BHCC 2020) where attendees could move an avatar in a map and retain some sense of physicality when spontaneously aggregating in different groups during breaks.

Communication with other researchers, e.g., in the form of guest speakers, workshop organisation, or project meetings, became easier as well. For example, members of the group were invited to give online talks to audiences in China, Switzerland, UK, or Sweden, and guest speakers from various countries accepted invitations to present their work to the group.

Topic
In this case study, we discuss some of the challenges that researchers of a leading information school encountered when conducting their research during the COVID-19 pandemic and the transitions in terms of working styles and methodologies that this necessitated. Focusing on the experience of members of the Information Retrieval research group, we discuss how working during the pandemic impacted how we conducted research on how people find and use information.

Value of your contribution
In the presentation of this work, we will provide insights on how we have organised our research activities during the lockdown. We will describe some of the challenges we encountered, reflect on

strengths and drawbacks of an exclusive use of online communication channels, and describe if and how our research methodology was impacted, both positively and negatively, by the lockdown limitations. We argue that our experience can help the audience to reflect on their own challenges during these uncertain times and provide insights into how researchers can adapt to the expected future of "hybrid" working.

References

Bartliff, Z., Kim, Y., Hopfgartner, F., Baxter, G. (2020) Leveraging Digital Forensics and Data Exploration to Understand the Creative Work of a Filmmaker: A Case Study of Stephen Dwoskin's Digital Archive. *Information Processing & Management,* 57(6):102399. doi:10.1016/j.ipm

Cameron, D., de Saille, S., Law, J., Perez Vallejos, E., Ball, M., Levine, M., & Ritchie, C. (2021) *Embedding Social Science into Upstream Engineering Research: Inclusivity as a pathway to building trust.* Proceedings of TAS-RUSI Conference on Trustworthy Autonomous Systems. *To appear*

Cameron, D., de Saille, S., Collins, E. C., Aitken, J. M., Cheung, H., Chua, A., ... & Law, J. (2021). The effect of social-cognitive recovery strategies on likability, capability and trust in social robots. *Computers in Human Behavior*, *114*, 106561. doi:10.1016/j.chb.2020.106561

Checco, A., & Polese, D. (2020). *Internet of Trees: A Vision for Advanced Monitoring of Crops*. In Proceedings of the 9th International Conference on Sensor Networks (SENSORNETS 2020), pp. 182-186.

Abbott, P., Checco, A., & Polese, D. (2021). *Smart Farming in sub-Saharan Africa: Challenges and Opportunities.* In Proceedings of the 10th International Conference on Sensor Networks (SENSORNETS 2021), pp. 159-164. doi:10.5220/0010416701590164

Kleanthous, S., Otterbacher, J., Bates, J., Giunchiglia, F., Hopfgartner, F., Kuflik, T., Orphanou, K., Paramita, M., Rovatsos, M., and Shulner-Tal, A. (2021) Report on the CyCAT Winter School on Fairness, Accountability, Transparency and Ethics (FATE) in AI. *SIGIR Forum, 55(1). To appear.*

Paramita, M., Orphanou, K., Christoforou, E., Otterbacher, J., and Hopfgartner, F. (2021). Do you see what I see? Images of the COVID-19 Pandemic through the Lens of Google. *Information Processing & Management. To appear.*

Zhang, C. and Clough, P. (2020). Investigating Clickbait in Chinese Social Media: A Study of WeChat. *Online Social Networks and Media*, 19:100095. doi:10.1016/j.osnem.2020.100095

Zhao, Z., Zhang, Z., and Hopfgartner, F. (2021). *A comparative study of using pre-trained language models for toxic comment classification*. In: Companion Proceedings of the Web Conference 2021 (WWW '21 Companion). SocialNLP 2021: The 9th International Workshop on Natural Language Processing for Social Media, 16 Apr 2021, Virtual conference. Association for Computational Linguistics (ACL). doi:10.1145/3442442.3452313