Lessons from the 1st open accessible and 100% reproducible PhD thesis

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To my knowledge, and with the confirmation of the library services, no one has ever published an open accessible and reproducible thesis since the establishment of University of Birmingham in 1900. That said, in this post, I would like to share the journey for such PhD thesis that along with the main limitations of time and funding, I also faced some other challenges such as being a minority and a non-native English speaker. Those were the variables that accompany me in such a journey but always with main goal of making the science that I always dreamed of, science which is reproduciblity and open accessesible to anyone anywhere.

I started a four-year journey of my PhD on November 2014 by, firstly, struggling to put together sentences in a language different from my mother tongue, then using new programming languages along with many open access software and tools to choose such as GNU-Linux distributions, version control tools, etc. Then in May 2015, the second year of my PhD, I joined twitter and with the desired of looking for like-minded humans. So in that exploration, I started to follow Olivia Guest (https://twitter.com/o_guest) and all her nice Github contributions, then I found the repositories of Severin Lemaignan, a robotics who is considering himself an open-source enthusiast (https://github.com/severin-lemaignan). By then, I made the decision to use R instead of python because the advances of reading huge datasets. Also that year I met Jon Tennant (https://twitter.com/protohedgehog) who is regarding himself as the batman of open science and who was an eye-opener on the status of making open science. Then the third year of my PhD was mainly about refining experiments, collecting, analysing data and finding ways to make them open accessible and reproducible but not least important than thinking seriously of writing up my thesis. The fourth year then come along with the challenge of putting together a thesis where all the previous open-source enthusiast, reference for code and websites made a great

influence in the final version of my thesis such as the discovery of the repository starry by Rodrigo Luger (https://github.com/rodluger/starry) with the beautiful embedded links to the python code and also various Github websites and repositories the NVIDIA toronto AI lab (https://github.com/nvtlabs/meta-sim).

All those four years allow me to get into open accessible science and to follow and learn from other in order to put together repositories for the LaTeXproject, data and code, website, zenodo links and video in youtube for the public dissemination of the first open accessible and %100 reproducible since the establishment of University of Birmingham in 1900.

But this is not the end of this work, as now I am wondering where is the future of open access and reproducible science. I guess in the closer future, there is something called actions which can be used in in azure, Gitlab or Github. But my only hope with this is that others also consider to change the direction of how science has been done by using more open access software and make science better by making it open accessible and %100 reproducible [1].

References

[1] Miguel Xochicale. *Github repository for PhD thesis*. `https://github.com/mxochicale-phd/thesis/`. Aug. 2019.