Territorial dispute is a sensitive topic within involved parties and subject of long-term diverging perspectives, defining the sovereignty of territories is – according to history – a matter of decades, in the meantime, web mapping services ought to display the borders all while taking into account governments' controversial requirements; a situation where implementing a geographical location based map personalization was preemptive (Soeller et al. 2016), on the other hand, one's unawareness of this personalization may trap into taking every content on the web as factual and raise information disparity issues. As a matter of fact, geographical location based map personalization is one among ubiquitous features tailoring the web to fit the growing user experience requirements.

Introducing 'context' to the web

Personalization is practically as age-old as its subjects; as in mass media, for instance, the broadcasting of television channels content in the local language and entertaining content during the weekends. With the number of host computers connected to the Internet growing from 80,000 to more than 125 million during the last quarter of the twentieth century, it is but natural for personalization to be deployed to the web for its universal utility regarding the end-user's interaction with a system.

As a result of personalizing algorithms' updates adoption by search engines (e.g. Google's 'Pigeon'), it became unlikely for the highly ranked returned results to be irrelevant upon including context describing terms to a query; various sensors maintain unique theme refined profiles ensuring that, for example, the query "Golf" returns championship scores for the club-and-ball sport fan and nearby car dealers for a prospective car buyer, where accuracy that is depth of absolute personalization depends on parameters including user account information and background noise such as the extent of subsequent searches producing a carry-over effect (Hannak et al. 2013).

Personalization is challenging

Personalization is a strong asset for precision and recall of a query's returned results, nonetheless, it comes with unnecessary scattered retained data smog to be processed, hence, it comes with challenges related to defining a benchmark or a scope of precision engendering the returned results. Otherwise, despite endeavours of incorporating the context that is expected by the end-user, personalized systems are unable to ontologically comprehend descriptive informational queries in terms of semantics - conversely to prescriptive navigational queries - (Chen, Williams 2009). The aforementioned data smog can be explained by – at least- the fact that a significant set of input browsing data is misleading the search algorithms: when predictor

variables such as exit and bounce rate are not effectively taken into account in the filtering algorithms, highly ranked returned results being incentives for access and verification clicks might intervene in the existing user's clickstream dataset leading to "Gravitational Black Holes of Information" (Holone 2016) steering the user in his own individual loop rendering him unable to access a wider range of information. Leading to equivalent outcome, user or item-based collaborative filtering narrows the global sparse network of components and clusters its users into a subnet of content solely considering adjacent subnets' and neighboring nodes' similarity (Manouselis, Costopoulou 2009).

Indeed, Eli Pariser raised by means of "The Filter Bubble" the concern of confirmation bias contributing in an isolation of ideas and interests in echo chambers and that of the exacerbation of its drawbacks due to the unawareness of searchers who tend to overvalue the quality of returned results, he points out that the opaque algorithms performing the filtering are causing inadvertent loss of information channels (Pariser 2011). Furthermore, the filter bubble effect has been associated with the so-called price discrimination (Council of economic advisers 2015), and ill-advised healthcare decisions (Holone 2016) such as in the case of anti-vaccination movement which reflects the severity of the situation.

Opportunity to operate in healthcare

Trends in the research fields of healthcare information technology reveal that personalization is conducive to clinical machine learning models able to return medical diagnoses out of a myriad of data: a collaborative network of structured health related data; alongside with the availability of data made possible by the uptake of the Internet of Things' healthcare or general-purpose trackers and the Electronic Health Records, applications of Natural Language Process techniques on medical researches' findings, and outcome of Data Mining on the connected EHR can ultimately lead to knowledge discovery patterns out of population aggregated data and accordingly come with the great benefit of backing clinical decisions in diagnoses and treatments particularly in the case of precision medicine taking in consideration the contextualized patient-specific data and prospectively supporting epidemic surveillance (Peek et al. 2015). Web personalization has developed methods related to information retrieval, query performance, and NLP that seem to be mature enough to be incorporated by the medical domain allowing –despite the numerous challenges- to put the design of web-based healthcare information systems on a solid ground.

Conclusion

Regardless of the flaws related to the collection and use of data, filtering –as part of personalization -is necessary to deal with the 2.5 EB of data generated every day. However, the ethics advocate that the complexity of the algorithms should not serve as an excuse to surrender accountability of flawed practices (e.g. price discrimination) and bring personalization to the value-neutral process it was meant to be through algorithm auditing (Mittelstadt 2016). Additionally, as suggested by Jonathan Stray (Stray), more or entirely different criteria should be taken into account when designing a filtering algorithm such as promotion of information diversity, namely "looking for what you didn't know you wanted"; nevertheless, conflating 'Diversity' without inhibiting a viable collaborative filtering can be challenging seeing their disparate nature, however, integrating dynamic content weighting schemes adjustable by end-users to predefined criteria comes to my mind as a debatable feature to be implemented.

Over the long haul, web personalization's potential usability outweighs the resolvable bubble filter drawbacks –not to mention the great impact of eventual NLP advancements on personalized systems-, it tangibly pioneered value creation from data and provided a field for proving effectiveness of state-of-the-art of artificial intelligence applications which makes it a requisite element of the forthcoming web 3.0.

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