

Make smart devices, or make people smart?

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People are increasingly living in a "machined" reality. To keep a car on the road, the driver should accommodate, to be assimilated into the physics of the car and the system of which that car is a part. People can accommodate. With each new application or device, technique is critically dependent on whether or not the user can learn to work with it. If it requires too much adjustment at once, it does not work. However, technology is increasingly equipped with accommodation capacity.

For example, by analysing my mouse clicking behaviour, Google "sees" my topics of interest, and suits the ads and suggestions for further reading (or watching) on that, with the result that I live in my own information bulb. But it is still human who is the master of adaptation. Our virtual reality - our information bulb - is constantly accessible for instance through Facebook, and consequently we adapt to that. But to what costs? Now the question becomes: should technology (devices) become smarter (adjust to individual needs, eg by pattern recognition or bigdata), or should we use technology to create smarter humans?

From your internet behaviour (click and viewing behaviour; the "digital crumbs" left on the web), algorithms derive your preferences and allergies and link them to more common patterns. This way you are linked to segments ("islands in the data sea"). Based on this, you are presented with selected messages, or you will be "paired" with people who may be of interest to you. Far more easily, this allows you to develop in the direction of your interest. Also for advertisers, this is interesting, because advertisements may be personalized. Actually, such algorithm is not intelligent. It constructs matrices and subsequently, by segmenting the data, it searches for coherence and correlations in the matrices. In this way, an ever more accurate estimate can be made. Of the segment (island) to which you are associated with respect to a particular criterion, all kinds of statistics (average, distribution etc.) are known. Thus, various features can be "determined", including your intelligence, your political preference, your sexual preferences, various personality traits, etc. Of course, this happens by comparing your "crumbs" with various "islands". Advertisers are interested in those features to promote and eventually adapt their products.

With my team, among other things, we create and work with these types of algorithms for the purpose of determining different learning strategies or working styles that can be taken into account by professionals. For instance in education, or in designing the workplace. Children and adults with autism, for example, learn differently from neurotypic people. If it is taken into account, autism does not have to block a successful and/or happy life (more about this in a later blog). However, the data we are allowed to "use" is very limited; much of our research is closely linked to medical ethics committees and their objections. That is remarkable. Why?

Commercial companies like Google and Facebook are allowed to use every little slot, even deleted typos. Their goals are not pure honest (selling), while unintended people get into an information bubble through the intervening algorithms and matrices. Someone with, for example, more conservative political preferences, lives in a completely different Facebook/internet environment than someone who has progressive preferences. On basis of your "digital crumbs", the algorithms select what you will see. It is quite possible that you will accommodate to a certain "configuration of segments" increasingly better. Your development is inadvertently directed in a certain direction. In the worst case this can lead to a vastly divided world, full of conflict, which confirms our own prejudices. And nobody seems to care.

In short, smart technology with built-in accommodating capacity, offers great possibilities but also at least as great dangers. It is remarkable that digital (algorithmic) surveillance is applied on a large scale almost without caution, while it is almost impossible to explore and develop similar techniques in the context of education and healthcare with professionals. Again, a restriction of smart technology is that it can block or even disturb development. Netflix, for example, "helps" my viewing habits by offering me suggestions to select items of my interest from an almost infinite offer. Consequently, it is hard to develop new interests outside my frame of reference. Education is always about exploring new horizons. Both in education and healthcare, we must use smart devices to help people develop, to create a utopia with smart and happy humans. However, we must prevent the opposite from being achieved.