

## CAN ONE PREDICT THE FUTURE? CAN ONE SHAPE IT?

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Recently designed and developed possibilities to collect big data sets permit not only to predict the future development of different natural and social processes, but also to affect them. The sources of accumulated data can be different, starting from book records, new (old), newspapers, censuses, medical histories, questionnaires, result of tests etc. Impressive new sources of rapidly growing importance are internet, social networks, stored on PC data, detailed analyses of written comments, including such relatively simple as “likes” or “dislikes” on mobiles and reposts. All this became an important source of personal information

Collecting “observable” data can establish previously unknown social and natural laws, and do this without special knowledge of specific laws that act in a considered domain. It is necessary to have only massive databases and suitable analyzing computer programs. The new abilities materialize the formula postulated for the future by G. Orwell as *Big Brother is watching you*. Key point of modern development in this direction came from understanding of the fact that now-a-days almost everything in our life is reflected on our PC and smartphones. Indeed, on-line financial operations, active or passive participation in social networks, even walk with a smartphone; manner of speaking, and so on gives important data about each person.

As an example, serves *Big Data Watson* for medicine. Already twelve questions to a patient along with all his available data give big superiority of machine opinions over highly qualified human concilium, presenting correct answers in more than 90% of considered diagnostic cases. Computerized analyses of drugs permit to perform simultaneous test of dozens of drug versions that have small molecular differences, accelerating introduction of effective drugs to patients.

Of interest and importance is so-called *targeted* or *profiled advertisement*, of which almost everybody is currently an object. The probability of action after personalized advertisement increases by more than an order of magnitude. This is important for financial institutions, where e.g. brokers acquire “inner degrees of freedom”. Collecting of data helps to perform “multi-dimensional” experiment in physics by studying not simply  $y = f(x)$ , but obtain “in one shot”  $y = f(x, z, t, \dots)$ , permitting to connect researchers working even in different fields.

*Big data* proved its effectiveness also in elections, since people can be described and grouped using several parameters. Analyzing their behavior, e.g. by counting “likes” on Facebook, an individual can be accurately profiled, personally addressed, and affected, so no more “*slogans for everybody*”. Facebook becomes a perfect weapon for advertisement and relatively cheap excellent adviser for elections, profiling voters, and distributing news – correct or false. For instance, *Vkontakte* has 150 mln subscribers and can be used with pro- and anti-government intentions. It can disclose and awaken negative features of a personality, unknown even to him/her, find people that commit *thought crime*. *Big data* becomes a pillar for dictators, giving them fake international support by injecting false information via their foreign agent. Falsification includes organized distribution of fraud, hate, fear, terror, rumors etc.

All this adds to our world a new, virtual dimension that shapes our future. For this we as scientists are responsible.