

Description for the general public

The phenomenon of information spreading in the modern media is an area of interdisciplinary research, often led also by physicists that cope with such issues as “Where did the news of the vaccines being unsafe come from and where did the information about problems with Volkswagen engines first appear? How did this message evolve while traveling from the source to us? Why do some information spread faster and others – do not?” We believe that owing to the combination of statistical physics, complex networks and data mining approaches the project “Reverse engineering of interacting signals in complex networks” may have potential to answer the above questions.

We speak about reverse engineering when, for instance, we disassemble a PC into its parts in order to figure out how they work and find out what they were made of. By acquiring this knowledge we are very often able to create a competitive product described by better parameters or better suited to cooperate with other products. The key idea behind our project is the reverse engineering of information processing in different types of modern media.

The project is not restricted to the creation of the information spreading model but it takes into account the possibility of uncovering the source where the specific message appeared in the first place. We are inclined to understand why the information was transmitted via specific channels, why we got it and how it changed on its way. Information transmission consists not only of raw copying but it takes processing as well. This process is only in part curated by specialized institutions – the overwhelming part of it is a spontaneous action of billions of social media users that in turn create evolving socio-technical systems.

Among the possible applications of the project are: extracting important information that were muffled or even blocked in the information space. Our research may also help with the analysis of spreading mechanisms of fake information (e.g., pseudoscience) that could bring harm to whole society.

Owing to international collaboration (e.g., Stanford University and Slovenian Press Agency) it is possible to gain access to large data sets extracted from social media portals as well as data from press articles.