IPS Winter School 2019:
The Power of Algorithms? A Sociological Perspective
(Summary)

Wir sind die Roboter, Kraftwerk (1978)

If one follows contemporary public debates about the relevance of algorithms one is confronted immediately with the question of the power of machines. Shopping on Amazon, searching via Google, communicating on Facebook – algorithms do their work in each case. They organize and seem to rule the attention economy of the media. The Winter School 2019 at the *Institute of Political Science and Sociology (IPS)* of *Julius-Maximilians-University* of Würzburg approached these observations from a decidedly sociological point of view, asking urgent questions: How are algorithms actually performing their work? When and how do they shape the social? How can sociology observe and describe their specific impact when most algorithms still are treated as a business secret? The talks and discussions within the Winter School lead to different solutions.

"Hardware Studies:" Invisibly Reigned by Numbers

At a first glance algorithms seems to be first and foremost one thing: a black box – their inner working is made intransparent and invisible to their "users" as well as their sociological observers. There are, on the one hand, technical reasons: algorithms seem to be complex and auto-controlled to such an extent that it is hardly possible to follow their way of – it is tempting so say: "thinking." On the other hand, there are the issues of business secrets and copyrights. Companies (as well as public agents) are keen to conceal how algorithms are developed, programmed, and installed for economic reasons. In the age of data capitalism algorithms are and will be hidden from public scrutiny. So how do we approach the study of algorithms? In his talk on "Algorithms and Predictions," *Kurt Jaeger*, computer scientist from the *German Forum for Computer Sciencists for Peace and Social Responsibility*, argued that it is already the machine driven by algorithms that determines the outcome of associated practices. This line of argument led to a discussion of whether there is an urgent need for digital literacy in order to understand competently what algorithms "really" do. In this context, the talk of *Marcus Burkhardt*, postdoctoral research associate at the chair for *Digital Media and Methods at the University of Siegen,* offered further valuable insights by examining the history of machine

learning. The question, however, remained: do we actually have to become computer scientists to be able to study a world affected by algorithms and their outcomes?

"Software Studies:" Getting a Thrill out of Algorithms

The proposals to concentrate mainly on the technical inner workings of algorithms didn't go unchallenged. Several speakers tried to open the black box of the algorithm from the perspective of the front end, i.e. the concrete and multiple uses of the software embedded in machines. In his talk on "The gods of content: How algorithms make and break today's media," *Gregor Schmalzried* from the Bavarian Broadcasting Station *Bayern 2* and the radio show *Zündfunk* talked about why the new outlets of traditional newspapers are facing serious economic problems because of the algorithmic structure on news spreading. In his talk on "Surveillance and the Digitalization of the Conduct of Life," *Jochen Steinbicker,* postdoctoral researcher from *Humboldt-University* in Berlin, shifted the emphasize to incentives of users of social networking sites and the like. The privacy paradox, i.e. the simultaneous desire for privacy *and* for the benefits of using internet sites that threaten privacy, points to the fact that digital devices have already found their way into our everyday conduct of life. Complicating notions of the omnipotence, concepts like the "Data Double" that does not essentially and without failure pinpoint the user in real life were inserted into the discussion. *Martin Stempfhuber,* postdoctoral researcher from *University of Würzburg*, elaborated on this idea by empirically reconstructing the practice of switching between online and offline worlds on contemporary hook-up-apps. Again, one of the points was an emphasis of the surprising and unintended effects of algorithmic affordances. In the case of hook-up-apps, it seems to be a certain measure of indeterminacy and unpredictability embedded in the opaque technical device that accounts for the pleasure and thrill of using it. In these three talks, then, it was argued that research on the algorithms' regulation could be done without turning social sciences into a subdiscipline of computer science.

Translations

Kathrin Glau, lecturer in the *School of Mathematical Sciences, Queen Mary University of London* and fellow at the *Swiss Finance Institute at the Ecole Polytechnique Fédérale de Lausanne*, showed in her talk on "Algorithms in Finance" that programming algorithms can be seen as a constant process of translation; it is a permanent switching between the need of – in her case – the trading market, the mathematical formula and model, and the implementation of the algorithm in the practice of the market. *Robert Seyfert*, senior

researcher at the *University of Duisburg / Essen*, gave a more sociological spin on this theme. We are in need of a relational approach when we theorize and analyze (at least sociologically) human-machine-interaction. He underlined the difference between a behavioral model of agency within computer science and a more cultural and in that respect maybe more complex model of agency within the social science. The "magic of the profane," i.e. the admiration for the supposed rationality of the algorithm, must not be blindly accepted by social scientists. Their task would be rather to get a foot in the door in order to insert a sociological model of relational agency into the debate.

How To Get a Foot in the Door?

There were several talks concerning that question. Different solutions were given: in her talk "Introduction to auditing algorithms," *Juhi Kulshrestha*, postdoctoral researcher at the Computational Social Science department at GESIS - Leibniz Institute for the Social Sciences, proposed diverse levels of analyzing the bias of algorithms and data. *Christiane Gross*, professor for Quantitative Methods at *University of Würzburg,* suggested in her talk "Big Data – big bias?" to return to classical criteria of data collection within the social science: objectivity, reliability, and validity. How valid can Big Data be? How objective is Big Data designed? And how reliable can that data be?

Finally, a maybe even more user-friendly way of understanding the interrelation between humans and machines was presented with the musical lectures of the Winter School. *Anton Kaun* (Munich) and his noise project *"Rumpeln,"* veteran *DJ Upstart (Rote Sonne)*, and legendary techno producer from Detroit *Juan Atkins* (who played at Würzburg's Club *MS Zufriedenheit*) performed their respective approaches to human-machine-interaction during the weekend. From aesthetics and art one can probably learn that agency can be located in DJs, dancers, and machines at the same time. That could be a possible starting point in grasping the new agency in between technical agents and users in the digital age.

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