

TEKX04-22-21

Traveling Algorithms

Background

Classification and valuation in today's society is increasingly done by computer systems and algorithms (Fourcade and Healy 2017). For example, algorithms are used to automatically identify people in surveillance (Neyland 2018), to calculate the risk of disease transmission (Lee 2017), and to assess the risk of recidivism (Kirkpatrick 2016). But algorithms do not create passive depictions of phenomena, they also change how things are classified, valued and handled in practice. For instance how new understandings of the progress of a disease are created when algorithms are used to analyze an infection: The veracity of AIDS patients' stories can be questioned when their accounts are compared to an algorithmically calculated "normal" disease progression (Lee et al. 2019). Algorithms thus not only depict phenomena in society, but also change how they are understood and handled. Algorithms are performative (Introna 2011).

An important aspect of this development is that algorithms are often treated as if they were domain independent—as if they could be translated without friction between different areas of society (Ribes et al. 2019). For example, a US computer system for predictive policing, *Predpol*, uses an algorithm developed to predict earthquake aftershocks to predict future crimes. An algorithm from geology is consequently translated into software that organizes law enforcement (Benbouzid 2019). Another example is how a music listening service, *Pandora*, imported an algorithm from ecology, that was intended to identify musical omnivores, as they were thought to have more social status—and more valuable for advertisers. An algorithm was thus translated from ecology to listener classification (Seaver 2020). In sum, algorithms are often translated between different domains and spread different ways of classifying, valuing, and organizing the world.

The research project

The thesis is linked to the research project "[AI: A New Scientific Revolution?](#)" which is part of the [Digital STS Hub](#) and the [Wallenberg Autonomous Systems Program—Humanities and Society](#). The research project investigates how new digital tools and methods create a growing flood of Big data. In order to manage this growing flood of data, many data-driven research projects are turning to new analytical methods using AI. As a result, we are currently experiencing an explosive introduction of AI in all parts of society. AI seems to promise a whole new way of producing knowledge about the world.

The thesis

The essence of the thesis is to understand how algorithms spread ideas between different domains of society. This could entail spreading ideas from the natural sciences to financial markets, or from epidemiology to criminology. Concretely the goal of this thesis is to select and trace how one algorithm developed in one area of society has spread to other areas. And perhaps more importantly how the selected algorithm spreads particular ways of understanding the world.

The thesis project includes the following steps:

1. Make an overview of several algorithms and how they have spread between different areas of society (for example epidemiology, market algorithms, criminology, meteorology)
2. Select one algorithm that has spread from one area of society to another

3. Interviews with algorithm developers on how the algorithm works, and how they describe how the algorithm analyses the world, for example in ecology
4. Interviews with developers that have imported the algorithm into a new domain, and how the algorithm is useful for them, for example in markets
5. Developing an analysis of how the algorithm has reshaped how a phenomenon is understood in the new area that it is used

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