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METHOD AND HYPOTHESIS TO SOLVE PROBLEMS WITH COMMUNICATION VIA ARTIFICIAL INTELLIGENCE AT SCALES[1]

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Abstract: From open source data collection, we study how communication via Artificial Intelligence at different scales enables new products, markets, business models and consumer experiences. Since it can automate tasks, reduce costs and speed up communication processes, transforming them; allowing companies to engage with the final consumer in language generated by machines, believable to human language, which derives in numerous implications. We also study how artificial intelligence can lead to understanding and decision making through analytics from complex sources, for predictive purposes; protecting a citizen, business or state from risks such as fraud and promoting cybersecurity. We identified the need for greater engendering between the areas of human and social communication and the IT area, in order to solve problems in AI. And, above all, we identified the imperative need to improve the development of databases that are used as the basis for AI work, in order to avoid the problem of bias in data processing.
Keywords: Artificial intelligence; Database; Bias; Scales; Communication; Computing; Information Engineering; Ethic; Geography.

THE ETHICAL PROBLEM INVOLVING AI AND ALGORITHMS IS LINKED TO THE DATABASE

The ethical problem identified in the action of predictive algorithms originates in the database that feeds the artificial intelligence. The databases available and used to train artificial intelligence are constituted from research. And there is no neutrality in the construction of scientific discourse or in the data that is collected. The data is constructed from research questions that arise from views of world, of an episteme, a set of discourses about reality. The theories and hypotheses that help us to create research questions, to identify research problems, leave marks in the data elaboration process, from its construction to its analysis. The data constitute, to some extent, a cultural engendering, that is, they are not natural to be extracted. At the very least, it is necessary to face the data as a paradox, a given is natural and cultural at the same time.

This is the question we need to face in contemporary times. We need better databases. This is the key to moving forward in discussions about artificial intelligence and predictive algorithms that guide automated actions. When the problems of non-neutrality, inequality and diversity arise, that is, when we identify that the data processed by artificial intelligence reinforce the colonialist, racist, sexist, homophobic, ethnic, regional, nationalist, classist, generational, rural- urban, center-periphery, among other aspects relevant to studies of the geography of communication, we need to consider the source. The deficiency of the databases used to train artificial intelligence.

Therefore, to find a viable solution to this current and future challenge, we need to take a step back. We need to understand how data is formed, how research is conducted. We need to denaturalize processes and face the human factor that has never ceased to guide scientific development.

We need methodology. Methodology is the study of the path, the route, the research trajectory that leads to the collection and analysis of data, which, in turn, integrate the databases that feed the AI.

In the scientific discourse, it is necessary to describe the route, expose the choices made, show their rationality, expose how the articulation of theories and data took place that led to the interpretation of the studied reality.

The more we expose about the "hows" and "whys" of the entire research path, the greater the scientific rigor of a work.

It is this epistemological vigilance and this transparency, by fixing and making available how we obtained the data, which actually allows the advancement of scientific knowledge. Only by facing it and becoming familiar with it will we be able to measure real margins of error in our data. We cannot rely on Excel's margin of error to properly train AI and ethically program algorithmic operations.

Concepts, methods and research techniques are not neutral.

There are no neutral questions, the research object is constructed in the research, therefore, we need to carry out epistemological surveillance (methodical explanation of the problems and principles of object construction). Examples:

Historical Method (Boas) – it is necessary to carry out a critique of the sources.

Comparative Method (Taylor) – pay attention to whether the parameters are based on the idea of diversity or inequality.

Statistical Method (Quetelet) – question the concept implied in the categories of analysis.

Typological Method (Weber) – it is necessary to pay attention to the fact that ideal types do not exist in reality.

Functionalist Method (Malinowski) – the idea of a system implies harmony and this idea is fragile.

Structuralist Method (Lévi-Strauss) – the idea that we reproduce social structures does not explain social transformation.

In addition, it is a determining factor to consider the approach and distance of the researcher in relation to the object of study. North Americans building knowledge about Brazil is different from Brazilians building knowledge about Brazil. Fixing the same data in English and not in Portuguese is also different. As well as, Portuguese elaborating data on Brazilians. There are other variables: black, indigenous or Caucasian Brazilians, from rural or urban areas, genders, generations, regions, occupations, socioeconomic groups, position and different social trajectory, producing data about Brazil. Let us remember that, as we established before, the given is a paradox, it is natural and cultural at the same time.

When the object of study seems familiar to us, due to the proximity to our cultural reference, we need to distance ourselves, assume a posture of estrangement, in order to know the specificities of the object – *turn the familiar into the exotic.* (DA MATTA, 1978, p. 23-35).

When the research object seems strange or exotic to us, because it belongs to a cultural reference that is distant from ours, we need to get closer and try to recognize what is familiar about it – *transform the exotic into the familiar.*

With these findings, we do not want to delegitimize or super relativize scientific production. We want to include in data processing the cultural variables linked to obtaining and interpreting them. In order precisely to guarantee scientific rigor, the solidity of the data. Because, without somehow considering these factors, AI will hardly find a path free of bias.

Definitely, Excel's margin of error does not handle this complexity. And, the solution, of course, is not to banish or disregard the information obtained with the participation of predictive algorithms and AI. The solution lies in getting more and better data.

The search path records are relevant data to solve this equation. Generating and storing data on the variables that impacted the collection and interpretation of other data is essential. It is a way of carrying out epistemological surveillance, it helps to establish approximation and distance, to measure realistic margins of error, to consider the human factor, including feeling and emotion throughout the process.

It is also necessary to consider the metadata, that is, what characterizes the genre and format of the data. Elements such as the theoretical dimension (ideas, notions and concepts mobilized) and the empirical dimension (the concreteness, the data collected and analyzed from the concepts). A research can use, for example, a multi-methodological strategy. A quantitative and a qualitative stage, with a combination of different techniques, both quantitative and qualitative. In the quantitative one, a relevant metadata is the fact that the sample is representative of the researched universe. Gains in breadth. In the qualitative, a relevant metadata is the fact that the sample is significant in the researched universe. Gains in depth.

Finally, in order to have better databases to serve AI, we can also consider that, possibly, there is relevant metadata at any stage of data collection and interpretation: 0º) observation of facts or phenomena; 1st) bibliographic research; 2) observation of facts or phenomena; 3rd) use of methods and techniques to obtain and interpret data that would not be possible to consolidate only with the previous steps.

AI, ALGORITHMS AND THE GEOGRAPHY OF COMMUNICATION

We are facing one of the prominent themes of today, which presents itself as a contemporary challenge, and is linked to the market dominance exercised by companies like Google, Apple and Amazon which, according to Kantar (2021), are the most valuable brands in the world; and also through social networks such as Facebook, Instagram and Whatsapp. We understand that even when we cut the study of communicational production from a place to its own territory, the traffic of media products is controlled by the telecommunications infrastructure holdings.

Therefore, the automation of tasks, the reduction of costs and the acceleration of communication processes, made possible by algorithmic operations, allow these companies, among a few others, to engage with the final consumer in language generated by machines, credible to human language, which leads to numerous implications, including ethical ones.

Communication via artificial intelligence, at different scales, enables new products, markets, business models and consumer experiences. The concept of scales, by Herod (2011), locates the body as the first scale, the starting point of the communication process in a given reality.

AI transforms the communication processes themselves, and therefore needs to be trained considering data at different scales: local, regional, national, international and transnational (MOREIRA, RIOS, ALMEIDA, 2020; MOREIRA, DEL BIANCO, MARTINS, 2021), among others, because cyberspace imposes other cuts from the point of view of the geography of communication.

According to MOREIRA (2013) and MOREIRA, BALDESSAR, OTA, BRANDALISE (2019), in contemporary society, which spreads out in interrelationships and complexities from the digital, geography brings to the field of communication contributions that make it possible to mediate and advance in understanding concepts such as place (DEOLINDO, 2019; MELO, 2012; CARLOS, 2007), space (MASSEY, 2009; ADAMS, 2009; 2017), space and place (MARANDOLA JR, HOLZER, OLIVEIRA, 2012 ; HUNNARD & RITCHIN, 2011), of space and time (SANTOS, 1997); by region (FADUL & GOBBI, 2006; AGUIAR, 2016; PINTO, 2017; MOREIRA&DEL BIANCO, 2019); territory (SANTOS, 1999; SANTOS&BECKER, 2007; HAESBAERT, 2007; SANTOS&

SILVEIRA, 2013; MOREIRA & DEL BIANCO, 2020); of borders (BRANDALISE, 2011, 2020; OTA, 2012, 2020), of global models of urban communication (SILVA, 2016), of the city (MOREIRA, REIS, 2020; VASCONCELOS, 2015; VEIGA, 2002; RISÉRIO, 2012) and this way, the center-periphery continuum (ROVIDA, 2020; Moreira, 2021), the neighborhood (MARTIN-BARBERO, 2006), the street and the rural-urban continuum (BALDESSAR, TARACHUCKY, 2018; BRANDALISE, 2020).

All these concepts need to be learned by AI, they are more complex than they seem when apprehended by common sense, they need to be apprehended from the tensions of the scientific fields in which they develop. Territoriality, for example, is the way you use the territory, what you do in that territory – hence the importance of Milton Santos' expression of used territory (SANTOS, 1999; SANTOS & SILVEIRA, 2001). The concept of territoriality is just one more example that shows how much progress is needed in the databases that feed AI.

In Geographies of Communication, FALKHEIMER & JANSSON (2006) dealt with the digital and networked space, punctuating the spatial turn in communication studies. The idea of territory includes physical spaces such as the nation, and also the digital space, where communication processes via AI are developed.

When working with smart cities, for example, SILVA (2016, 2019) highlights the relationship between urban and digital territory. The AI that enables smart cities also enables social control systems, with the potential to protect a citizen, a company or a state from risks such as fraud, with the potential to promote cybersecurity, and with the potential to transform citizens, companies , state, its relations and knowledge in merchandise.

From this, we understand that it is necessary to study the media and AI in places and their distribution across the territory at multiple scales. It is necessary to study the influence of affirmative action policies on diversity, the flow of students and professionals in areas of interest linked to AI, as well as the expansion and internalization of education and markets.

In the study of communication geography, we consider the geographical turn in communication studies and the communicational turn in geography studies. We think about communication taking into account the apprehension of space "in the process in which the sociocultural context is presented, pointing out its characteristics, without forgetting the complexity on which the phenomena are structured" (Santos & Silva, 2012). And, according to Paul Adams (2009; 2012; 2017), who reinterprets the cultural turn in geography, sensitizing geographers to the broad spectrum of communication theories, we understand that it is necessary to study the time and space of communication. Currently, both movements need to be studied considering algorithmic operations and AI.

Artificial intelligence can lead to understanding and decision-making through analytics from complex sources, for predictive purposes, in an increasingly accurate way, once it is fed with studies of media infrastructures of information production (MOREIRA; DEL BIANCO; MARTINS, 2021), organization, indexing, circulation and use of information (BRANDALISE, 2011). Which also implies being fed with information about itself.

From this exploratory research, with the analysis of the referenced documents, using the hypothetical deductive method and the theoretical genre study technique, collecting and analyzing open source data, we identified

the need for greater engendering between the areas of human and social communication and the IT area.

And, above all, we identified the imperative need to improve the development of databases that are used as the basis for AI work, in order to avoid the problem of bias in data processing. For the solution of ethical problems in AI, for the use of AI in studies of communication geography and for the understanding of AI as a transforming part of communication processes, shaped by social, cultural, political, economic and historical processes.

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