Technological Disputation

Memo by Anthony Rosborough

EUI Researchers Elena Pisanelli (SPS) and Agnieszka Jablonowska (MPW – LAW) exchanged their views with respect to the meaning and implications of the quote: "*Big data processes codify the past. They do not invent the future*" is drawn from author Cathy O'Neil's book "*[Weapons of Math Destruction: How](#) [Big Data Increases Inequality and Threatens Democracy](#)*" (2016).

This event has been organised by the Technological Change and Society Interdisciplinary Research Cluster

The Disputation began with some introductory comments from a EUI Professor. He expressed gratitude for the participation and contributions of the two speakers. He very briefly introduced the two speakers, remarking that Ms. Jablonowska's work has focused largely on technology and consumer protection issues, while Ms. Pisanelli's work has examined the connection between algorithmic processes and social inequality.

Speaking first, **Ms. Elena Pisanelli** remarked that algorithms were born as an innovative tool for reasons of efficiency. Their basic function substitutes human discretion for mathematical calculation. Ms. Pisanelli focused largely on the application of these technologies in the employment context – and particularly for hiring employees. In this context, the efficiencies intended by these systems are ordinarily targeted at reducing biased discretion. Yet, algorithmic processes applied in these contexts show embedded bias and even discrimination. Ms. Pisanelli's overall point was the algorithmic processes are legitimising biases that are endemic and systemic in society, and this is reflected Cathy O'Neil's quote.

Ms. Pisanelli then elaborated upon the ways in which algorithmic processes provide prospective employers with useful analyses. When employers are looking to hire new employees, AI processes act to predict the future performance of the worker and make assessments about their reliability and efficiency (among other things). This predictive role is only made possible by using large amounts of data from which the processes learn and

generates progressively more accurate decisions. The problem, for Ms. Pisanelli, is the long history of workplace discrimination against migrants, women and other minorities that then is embedded in the data sets used by the algorithms. The data is a representation of the society are *currently operating within* rather than the one we aspire to. On this basis, Ms. Pisanelli reasoned that the quote is accurate – AI systems are tools to codify the systemic biases in our society.

The bias is not only found in the datasets. Ms. Pisanelli commented further that the people who are creating and coding the systems are also embedding biases within them. She did not provide specific examples, but pointed to the notion that it is mostly white men and engineers who are creating algorithmic systems and their personal subjective biases are being embedded into these systems. Overall, Ms. Pisanelli's contention was that we should do more to challenge how these systems work to ensure that they are held accountable from the subjective biases of their creators as well as free from repeating the unfortunate inequalities of the past and present.

Ms. Agnieszka Jablonowska spoke second. Her comments were mostly focused on the promises of efficiency and accuracy touted by the algorithmic processes. She warned that the complexity of these systems might be so great that users are faced with the same limitations that they were supposed to be freed from.

A point in the quote lacking clarity for Ms. Jablonowska was the meaning of "big data processes". Is this reference to "processes" meant to refer to the mathematical equations and the ways in which they objectively operate? Or, alternatively, is it meant to draw reference to the socio-technical dimension in which the issues raised by Ms. Pisanelli are more within its focus. She reasoned that if what is meant by a "big data process" is in fact the larger socio-technical context, then there is a possibility that concerns of "codifying the past" can, in theory, be mitigated by new procedures or regulatory oversights, i.e. by addressing the human factor (in some cases through legislative instruments).

In terms of AI's legal aspects, however, Ms. Jablonowska questioned what the law might do to mitigate the tendency of algorithms to codify past behaviour or practices. Where these problems stem from the biases of programmers and not datasets, the law is challenged to find solutions. It is not so easy to identify what human beings are thinking on a personal and subjective level. The difficulty in this analysis only becomes greater through bureaucracy and

multifaceted legislative instruments. In the end, the effect might be to overburden others with compliance and not have any real solutions.

In assessing the notion of "codifying the past", Ms. Jablonowska identified issues in verifying this. She cautioned that a legal solution to assessing replication of past behaviours may require significant technical expertise on the part of regulators. The result may be an unrealistic and very complicated approach to the problem. This could – in turn – make the problem even worse. A separate remark was made in relation to the use of big data processes by regulators themselves. For Ms. Jablonowska, an additional risk of using algorithmic systems for legal processes is found in the fact that decisions made in this context can be especially hard to deviate from. Thus, humans applying and affected by the (code-enhanced) law can behave in ways prescribed by it, but not due to their intrinsic motivations. The resulting determinacy is a larger issue, which must be considered together with the question of the extent to which algorithmic processes replicate past behaviour or biases.

The Disputation then opened to comments and thoughts from attendees. A EUI Professor was the first to chime in. He questioned the extent to which these problems are technological versus cultural. He suggested the remedy to the problem should flow from the diagnosis we make of the problem. He then addressed an issue raised by the inverse of the quote. Namely, how should we assess emergent behaviour within these systems which we do not completely understand. He remarked that in looking to what we might do about unprecedented or novel behaviour, rectifying the over-reliance on past behaviour or biases might be comparatively easy.

He then questioned whether there has been empirical research done on the relationship between illiberal governments and their support for AI systems. He suggested that, if it is true that AI systems codify the past, we might be able to find support for these systems among illiberal states which wish to cement a certain type of established cultural behaviour.

Ms. Jablonowska responded that there is a significant interest in AI systems among illiberal states. Having said that, nepotism is rampant in these states as well, and this could result in the competence to develop these systems being lost for elsewhere. In other words, despite the potential for desire among these states to establish AI systems for illiberal reasons, they might not be able to do so.

A PhD researcher then addressed the sociological or cultural elements to this discussion. He remarked that the use of AI systems in recruiting and hiring may actually enable us to resolve bias or discrimination in a more direct way than ever before. He noted the extensive discussions that have been happening as of late surrounding the use of AI in these contexts and expressed optimism that more mindfulness of these harms have been put front and centre.

A cluster member then addressed AI in the context of search outcomes. She suggested that there may be room to develop AI systems that are not based necessarily on prior data sets alone, but also on the type of future that we aspire to. She acknowledged the potential risks for freedom of expression and other fundamental rights, but nevertheless felt optimistic that not all AI systems will necessarily replicate the past.

Ms. Pisanelli expressed the view that these debates have all been focused too much on training data as the source of the problem. She felt that we instead should be looking to the creation of the algorithms themselves and the biases that are going into their creation.

A participant felt that the biases of developers have been taken note of in recent years. He drew reference to workshops and educational sessions within the development community which have focused on this. And though we cannot investigate the contents of other peoples' minds, he felt that some base level of knowledge of these issues is present in the development community.

A Professor then remarked that these political discussions over the use of AI have so far been dominated by social science concerns. He said that more distant issues seem to be the market and private interest dimensions for harm. He said that as researchers, we need to distance ourselves from the hype created by notions of a dystopian future. He said that we need to distance ourselves from advocacy in the public and private spheres, but this is very hard to do in practice.

Finally, another attendee commented that we may be able to gain perspective and find the middle ground by focusing on recent literature. He said that we have a solid and lengthy history of computing events where these dilemmas were addressed faced. He said we can learn from these, as evidenced in literature and fiction. He said that fiction can help us avoid falling into the trap that the framing question of this debate poses. The truth is that we can be

in a state of not being able to see the future without being hopeless married to the past. We should learn from the lessons embedded in literature to see how.