Big data Analytics

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This paper discusses the issue of algorithmic bias in machine learning and artificial intelligence systems, which can perpetuate and exacerbate systemic biases in society. The authors highlight the need for regulatory mechanisms and transparent, trustworthy, and fair algorithms to address discrimination and enhance fairness in algorithm design and use. The paper focuses on the EU's recent formal advances and considers other potential mechanisms to prevent bias and discrimination.
There are growing calls that are transparent, trustworthy, and fair for regulatory mechanisms and algorithms. This paper surveys recent formal advances proposed by the EU and explores additional mechanisms to avoid discrimination and enhance fairness in algorithm design and usage. Implementing these mechanisms will require collaborative efforts from policymakers, lawyers, and computer scientists. Unconscious and systemic biases in the real world or training data can lead to misrepresentation of particular groups, disadvantaging them.
Computer science has made significant strides in developing algorithms, especially in machine learning and AI, which promise substantial economic benefits and pervade various aspects of daily life.
However, concerns have emerged regarding the potential biases embedded in these algorithms, leading to adverse societal effects.
Biases in algorithms can stem from various stages of the data processing cycle, including input data collection, vectorisation, model building, and behavioural impact. These biases can perpetuate and exacerbate societal inequalities if left unchecked. Subjectivity in manual labeling of data can introduce bias into the dataset.
The General Data Protection Regulation, effective in May 2018, introduces measures to protect individuals' data rights and addresses concerns related to automated decision making. Transparency, explanation, and accountability are key principles emphasised in the General Data Protection Regulation.
Solutions to address algorithmic biases include the establishment of codes of conduct, quality labels, audits, and transparency measures throughout the data chain. De biasing datasets and algorithms is crucial for ensuring fairness and non-discrimination.
Building safeguards for AI and algorithms is essential to uphold fundamental rights and ensure the proper functioning of democratic systems. Collaborative efforts are necessary to implement these mechanisms effectively.

The paper emphasises the importance of building AI safeguards to ensure the respect of fundamental rights and freedoms, as well as a proper, safe, and reliable functioning of algorithms. Encouraging innovation with flexible regulation while protecting people's rights is crucial for a balanced approach, highlights the importance of addressing algorithmic biases and proposes a range of solutions to promote fairness, transparency, and accountability in algorithm design and usage.