

Data and AI Inequalities: A Systemic, Multidimensional, and Intersectional Approach

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Abstract

Inequality—the state of not being equal, especially in rights and opportunities—is a major obstacle to achieving just, sustainable, and democratic societies. These inequalities disproportionately affect specific groups based on gender, race, economic status, ethnicity, age, disability, language, religion, migrant status, and nationality.

The rise of inequalities within and between countries endangers societies by fueling social unrest, hindering social progress, jeopardizing economic and political stability, and weakening human rights. Inequalities are multidimensional, historical, systemic, structural, and cumulative. As a social product, they result from policies, laws, regulations, institutions, cultural practices, structural barriers, democratic deficits, and concentrations of wealth and power that shape economic, political, and social systems.

Data and AI are at the center of global attention, often accompanied by promises of fostering economic growth and increasing productivity across all spheres of social life. While data and AI are transforming various aspects of society, their benefits are not distributed equally, raising concerns about their potential to exacerbate existing inequalities both locally and globally.

Addressing data/AI-related inequalities requires a systemic, multidimensional, and intersectional perspective. This approach must consider the interconnected nature of inequalities and examine their presence and impact throughout the AI lifecycle, as well as within governance institutions, frameworks, the global AI ecosystem, and specific AI systems.

A systemic perspective on data/AI and inequalities involves examining how AI systems are embedded within broader social structures. AI technologies do not operate in a vacuum; they are deeply intertwined with existing social, economic, and political systems. This systemic approach emphasizes that governments, policymakers and practitioners must address the root causes of inequality and avoid technosolutionism—the belief that technology alone can resolve these issues. For example, predictive systems designed to prevent teenage pregnancy often fail to address the structural conditions young women face, such as limited access to education, healthcare, labor opportunities, and a life free from violence.

A multidimensional approach recognizes that inequalities in the context of AI are not singular but span multiple interconnected facets. Analyzing AI's impact on inequality requires consideration of both global and local dynamics, as well as its manifestations at the micro, meso, and macro levels¹. This includes examining its effects across various spheres of social life, such as political and governance systems, economic structures, labor markets, education systems, healthcare, sociocultural dynamics, technological and digital infrastructure, environmental sustainability, and community and civic engagement. For instance, failing to consider the environmental impact of technological development—such as the effects of mining, the energy consumption required for training models, and the use of water to cool data centers—can contribute to environmental, health, and economic inequalities. This oversight hinders communities in precarious conditions from advocating for their rights² and may lead policymakers to support projects that negatively affect people's living conditions.

An intersectional perspective is essential for understanding how various forms of inequality intersect and interact, stemming from historical processes of exclusion and oppression. Rooted in feminist studies, this approach highlights how AI can disproportionately impact marginalized groups by reinforcing existing discriminatory social structures and generating new forms of exclusion.

Intersectionality investigates how intersecting power relations influence social relations across diverse societies and individual experiences in everyday life. As an analytic tool, intersectionality views categories such as race, class, gender, sexuality, nation, ability, ethnicity, and age as interrelated and mutually shaping

¹Ricaurte, P. (2022). Ethics for the majority world: AI and the question of violence at scale, *Media, Culture & Society*, 44 (4). <https://doi.org/10.1177/01634437221099612>.

²Tierra Común Network. (2023). *Resisting data colonialism. Interventions for data decolonization*. Amsterdam: Institute of Network Cultures.

one another. It provides a framework for understanding and explaining complexity in the world, in people, and in human experiences.³

Thus, an intersectional analysis should examine how AI, throughout its lifecycle, affects individuals and groups based on their intertwined social identities. This approach recognizes that the impact of AI is not uniform, as overlapping forms of discrimination and privilege can compound or mitigate the effects of technology on different populations. For example, algorithms used to assign social protection benefits may inadvertently exclude certain groups, thereby perpetuating social and economic inequalities.

By adopting a systemic, multidimensional, and intersectional approach to inequalities across the AI lifecycle, we can better understand the complex ways in which AI interacts with existing economic, political, historical, social, and cultural structures. This comprehensive perspective is crucial for developing AI technologies that advance social justice and equity.

³Collins, P. H., & Bilge, S. (2020). Intersectionality. John Wiley & Sons, p. 10.

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