

Intersectional Artificial Intelligence Is Essential: Polyvocal, Multimodal, Experimental Methods to Save AI

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ABSTRACT

Artificial Intelligence is quietly shaping social structures and private lives. Although it promises parity and efficiency, its computational processes mirror biases of existing power even as often-proprietary data practices and cultural perceptions of computational magic obscure those influences. However, intersectionality—which foregrounds an analysis of institutional power and incorporates queer, feminist, and critical race theories—can help to rethink Artificial Intelligence. An intersectional framework can be used to analyze the biases and problems built into existing Artificial Intelligence, as well as to uncover alternative ethics from its counter-histories. This paper calls for the application of intersectional strategies to Artificial Intelligence at every level, from data to design to implementation, from technologist to user. Drawing on intersectional theories, the research argues these strategies are polyvocal, multimodal, and experimental—suggesting that community-focused and artistic practices can help imagine Artificial Intelligence’s intersectional possibilities and help begin to address its biases.

KEYWORDS

Artificial Intelligence; Intersectionality; Gender; Critical Race Theory; Sexuality; Feminism; Algorithms; Bias; Experimental Practice; Computational Media

1 | INTRODUCTION

Artificial Intelligence (AI) should be created, critiqued, and reframed with an awareness of power—valuing multiple perspectives and methodologies—in order to address the social inequalities, it reinforces. An intersectional framework can be used to analyze existing AI and to uncover alternative possibilities from its counter-histories, as well as to help shift approaches to designing new AI.

After briefly contextualizing current arguments about AI bias, and exploring how intersectionality analyzes institutional power not individual identity alone, this paper will offer examples of intersectional strategies from Black feminist, mixed race, and queer communities that might be applied to algorithm design and implementation. It will also pull interdisciplinary techniques from design and humanities to show how these might be engaged. Finally, it looks to several experimental and artistic examples that offer a preliminary imaginary for intersectional AI.

2 | AI IS NOT AN AUTHORITY, NOT A MIRROR

Despite the democratizing promise of digital technologies, identity markers are being reinforced and even extracted as capital through algorithmic systems. “What gets framed as a matter of [nature or] preference is linked to a system in which whiteness holds more value” (Niesen, 2016, p. 171). The examples are widespread and troubling, like the ProPublica study of AI criminal risk assessment that found it terrifyingly inaccurate: “The score proved remarkably unreliable in forecasting violent crime: Only 20 percent [...] actually went on to [commit them]. [...] The formula was particularly likely to falsely flag black defendants as future criminals, [...]. White defendants were mislabeled as low risk more often than black defendants” (Angwin et al., 2016). This exemplifies what Ruha Benjamin (2019) calls “the New Jim Code.”

Such biases precede the use of digital technologies (Chun, 2018, p. 64) but are further disguised by them. Cultural misunderstandings of AI allow their resulting data to assume a status of impartial fact, even as they operate by human intervention at every level. For example, the ImageNet database was created with categories pulled from the older WordNet database and images pulled from the Internet:

The researchers then enlisted fifty thousand low-paid workers through Amazon’s crowdsourcing labor platform,

Amazon Mechanical Turk, to apply labels to the images. The laborers' biases were ultimately embedded into the project, and [...] the prejudices of that labor pool are reflected in the AI technologies drawing from the data. Since AI is used not only by tech giants and academic labs, but also by state and federal governments and law enforcement agencies, flaws in its data sets can have wide-ranging impact. (*Artforum*, 2019, n.p.)

This labor is horrifyingly evident in the field of commercial content moderation (CCM) [1], which Sarah T. Roberts (2016) argues lends a dangerous sense of naturalization to racist and biased content: "Companies' desire to keep CCM work in the shadows [...] gives the impression that such content is just what is out there in the culture [...] and hides the human decision-making processes" (p. 157). Here AI "autonomy" is carefully curated for corporate profit, but contingent on human systems—who are acting as technology, while ignored and exploited on its behalf.

This curation also allows AI's operations to remain opaque. The conflation of various types of AI (general and narrow, deep learning and neural networks)—along with its conflation with the big data it utilizes and with other types of algorithms—all contributes to AI's aura of unquestioned truthiness, which does little to undo the infrastructural inequalities it sometimes amplifies.

3 | INTERSECTIONALITY IS NOT JUST MORE REPRESENTATION, NOT JUST MORE DATA

Reading AI through an intersectional lens can help decode these power structures, and using intersectional approaches to design and implement AI creates the possibility for restructuring them. Brittney Cooper (2016) reminds us how intersectionality is often misunderstood: Intersectionality is not merely shorthand for discussing individual identity representation in strings of hyphenates—rather, it examines and critiques systems of power and how those systems structure themselves to impact groups and individuals unequally.

Further, it is not enough to add more data to the neural network or to represent additional identities—these too will be opportunities for marketing. Molly Niesen argues that "the fracturing of users based on identity categories is, in fact, a key mechanism of capital to provide such data to advertisers" (Niesen, 2016, p. 168). And as Wendy Chun (2018) points out, even feminist intersectional theory, when misread as a means of sifting data for sameness through

identity difference, can be misappropriated toward racist ends (p. 65). However, when used instead to consider institutional structures that feed those data, intersectional readings of technology are essential, because as Safiya Noble (2018) claims, they offer "new [...] interpretations for understanding the implications of such problematic positions about the benign instrumentality of technologies" (p. 31).

4 | INTERSECTIONAL APPROACHES: SELF-REFLEXIVE, POLYVOCAL, MULTIMODAL

Because intersectional theory owes its roots to Black feminist thought, the strategies employed by women of color are at the core of an intersectional critical praxis. Safiya Noble, Brendesha Tynes, and Joshua Schuschke (2016) argue that the queer women of color who founded Black Lives Matter offer a model for coalition-building through skills honed in community:

[...] the movement's reflexivity, the ability to counter hegemonic narratives, and self-care are key components of digital intersectionality. By modeling the standard of reflexivity, the movement is able to critique and correct its own narrative and practices. (p. 28)

These could be incorporated into intersectional AI at the development, implementation, analysis, or data-gathering stages—and these methods could work to destabilize existing standards and biases.

In particular, strategies from mixed race, trans, bisexual, and femme communities—whose identities are not easily categorized, who sometimes maneuver by passing within systems—may also help engage and subvert normative algorithmic practices, operating on multiple valences of infrastructural power and intersectional disenfranchisement. Myra Washington (2017) argues for a mixed-race ethos that can cut across categories: "transracialness is about the 'potential mutual transformation' of those categories [...] how people [...] move within this spectrum of power and is not so much about identity" (p. 14–15).

And because queer theory troubles presumptions about a clearly defined, natural category called female (Cipolla, Gupta & Rubin, 2017, p. 7), reading AI through intersectional queer theory can push back on assumptions in AI about gender—and using queer strategies to disorient those categories can also push back on assumptions about technologies themselves. Geographers Daniel Cockayne and Lizzie Richardson (2017) read queer theory through software studies because "queer approaches are invested in conceptualizing and (therefore)

challenging both social and digital code(s)—or the norm—to show how they constrain normativity but also how forms of intimate life can transgress, disrupt, and distribute what is normal” (p. 1643).

Queer-of-color activists reclaim less-visible identities as sites of strength. Zuleikha Mahmood and Leah Lakshmi Piepzna-Samarasinha, authors of the *Femme Shark Manifesto*, for example, redefine ‘femme’ to make it legible and instrumental in their community: “being fierce women of color or down white girls [...] who see the connection between everything in our lives” (Mahmood & Piepzna-Samarasinha, 2008, p. 4).

5 | IMAGINING INTERSECTIONAL AI: UTILIZING UNCERTAINTY & ENTANGLEMENT

Such attitudes can inspire intersectional connections and possibilities for AI that challenge how technologies are both connecting and othering individuals. They help frame how intersectional AI might instrumentalize precarious orientations, rework stereotypes of passing, and utilize instability in order to reprogram technologies of gender and agency.

Speculating a more intersectional techno-imaginary, Kara Keeling (2014) proposes the Queer OS: “to make queer into the logic of ‘an operating system of a larger order’ that unsettles the common senses that secure those presently hegemonic social relations [...but] acknowledges its own imbrication with and reliance on those logics while still striving to forge new relationships and connections” (p. 154).

Keeling calls it a “malfunction with a capacity to reorder things” (p. 157), which moves away from the urge to read neutrality and rationality into algorithms, and echoes Luciana Parisi’s (2017) suggestion that machine learning can be read as a new form of knowing, or: “reasoning through and with uncertainty” (p. 8).

Elizabeth Wilson (2010) also asks how malfunction might contribute to more advanced artificial agents: “Is error (and [...] shame and anger and contempt) the limit of an artificial system, or [...]? Might there be artificial systems that can tolerate their own inadequacies?” (p. 57).

6 | IMAGINING INTERSECTIONAL AI: POLYVOCAL DESIGN, MULTIMODAL ANALYSIS

In addressing AI bias, I want to remain mindful of cheerful calls for collectivity and diversity that ignore the nuance of inequality. Lauren Berlant (2016) warns us that the so-called commons can threaten “to cover over the very complexity of [...] interdependence it responds to,” but should

instead point to “the difficulty of convening a world conjointly” (p. 395).

Thus, imagining intersectional AI cannot be done from a single subject position. This work must happen in multiple communities and take shape in intersecting forms, morphing and subverting, with no singular ethic or aesthetic—but rather a meta-ethics of multiplicity and intersubjective relations.

Applying intersectional tactics to AI could offer material impacts, but those may be difficult to trace—requiring a combination of interdisciplinary methods and multi-sensory tools.

Catherine D’Ignazio and Lauren F. Klein make the design process itself more intersectional, arguing that “data, design, and community of use, are inextricably intertwined” (p. 2). They propose six principles for feminist data visualization that could be adopted for AI: “rethink binaries,” “embrace pluralism,” “examine power and aspire to empowerment,” “consider context,” “legitimize embodiment and affect,” and “make labor visible” (p. 2–3).

From the social sciences and humanities comes Critical Technocultural Discourse Analysis, a research method that examines both “the technological artifact and user discourse, framed by cultural theory, to unpack semiotic and material connections between form, function, belief, and meaning” (Sweeney & Brock, 2014, p. 3). The techniques above draw on design thinking and cultural studies methodologies to both critique and intervene at any phase of technological processes.

7 | IMAGINING INTERSECTIONAL AI: COMMUNITY METHODOLOGIES & ARTISTIC EXPERIMENTS

Several case studies offer inspiration for intersectional AI to come. The Algorithmic Justice League intervenes on what they call the “coded gaze” with poems, corporate pledges, and code modules (Buolamwini, 2017, 2018). The Data Nutrition Label (Holland et al., 2018) addresses bias at the point of data collection, using a visual aid for assessing problems in potential datasets to prevent bad outcomes early on (p. 13) and help researchers build better habits by “questioning datasets through analysis and interrogation techniques” (p. 15). While not themselves AI, these practices bring intersectional thinking into tech spaces, helping shift an entrenched mindset with creative and helpful, playful and interventionist tools alike. Imagining intersectional AI means intervening with practical and speculative approaches simultaneously.

One experimental approach is to create absurdist tactical media, such as *ladymouth*, a chatbot that tries to explain feminism to online misogynists (Ciston, 2019a). Its initial prototype posted quotations from feminist scholars to subreddits like *The Red Pill* and used responses to make text-based performance and video. Designed with the idea that the tool should be adaptable to other intersectional issues, it inspired a collaborative project that uses its technology to help address diversity labor in STEM workplaces (Billard et al., 2019). These show how a speculative project can spawn additional practical solutions for other audiences by opening a space to ideate and iterate on intersectional possibilities.

Such spaces thrive in community, and the organization Feminist.AI takes a community-driven approach to rethinking what it calls “hegemonic AI.” The Feminist.AI “Cultural AI Design” philosophy emphasizes multiple modes of access in order to draw from different knowledge systems, community-sourcing their own data, and revisiting their process with each new project (Feminist.AI, n.d.). Co-founder Christine Meinders (2019) says that feeling safe to play and create rather than focusing on being ‘right’ is essential, and the organization considers resources such as childcare an important part of its workshops and collaborations.

In another community-focused technology space, Color Coded is “a collective holding space for POC to co-teach, co-create, and co-own technologies because #TechIsNotNeutral”. They provide technology-rich environments only for historically excluded people to collaborate and learn. Recent workshops have addressed topics like algorithmic streaming biases and “how blockchain technology might support and sustain community-centered collectives” (Color Coded, n.d.). Unlike organizations that emphasize inclusion, this model foregrounds exclusivity in order to amplify resources for communities of color. They cite Kelsey Blackwell (2018) who argues that, “Being together can offer resiliency for bringing our fullness into integrated spaces where it will inevitably be challenged.” She continues:

[...] merely inviting more people of color into a space does not in and of itself make that space inclusive. Patterns of white dominance suffuse the space just like other spaces we occupy, only this time, we’re calling it “inclusive.” That’s more painful and frustrating than being in spaces that are blind. (Blackwell, 2018)

Thus, a combination of inclusive and reserved spaces best supports a variety of communities

and intersecting identities, in order to create safety and access, to share and prioritize resources and techniques as needed. Showcasing a mix of approaches and outcomes rather than a one-size-fits-all approach is at the heart of an intersectional methodology.

In another example of intersectional group practice, this mix of approaches informs the intersectional pedagogy for hacker-style spaces where student media artists can learn programming. University of Southern California’s Creative Code Collective offers co-learning across disciplines, from a project-driven perspective. Its ethos emphasizes “scrappy artistic strategies not perfect code; growth not mastery” (Ciston, 2019b). In the collective, artist-teachers model their approaches to working creatively with existing and emerging tech—for example using natural language processing in poetic practices that draw out combinations of critical considerations and aesthetic oddities, foregrounding the ethics embedded in their tools and practices.

5 | CONCLUSION

These kinds of artistic experiments and interventions that make alternative use of AI are one approach to develop possibilities for more thoughtful and inclusive technologies. Through their provocation “ImageNet Roulette,” which allowed users to view how their webcam image would be categorized by a neural network trained on the ImageNet database, Kate Crawford and Trevor Paglen (2019) point out:

[...] the automated interpretation of images is an inherently social and political project, rather than a purely technical one. [...] Regardless of the supposed neutrality of any particular category, the selection of images skews the meaning in ways that are gendered, racialized, ableist, and ageist. ImageNet is an object lesson, if you will, in what happens when people are categorized like objects. (n.p.)

The conversation started by “ImageNet Roulette” has led to direct changes to the database itself (*Artforum*, 2019, n.p.), which do not eliminate bias but at least begin to acknowledge its existence—after decades of use as a “neutral” tool, one that clearly has not aged well, with its history being traceable to ‘boy’s club’ technologist cultures (Crawford & Paglen, 2019, n.p.).

Such works are a call for all of us to demand a better way, to heed those already speaking up for it. This paper is not, and should not be, the only perspective on intersectional AI, nor does it claim

to be the correct one. Rather, it argues that—through many conversations and interventions—intersectional AI is a set of possibilities we must construct together.

Whether designing new AI, examining and experimenting with existing tools, or supporting others' work—we can use intersectional aesthetics, ethics, and tactics to re-imagine AI. Fostering communities and technologies in which multiple voices feel valued—and feel free to experiment—is essential.

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ENDNOTES

[1] As laid out by Sarah T. Roberts (2016), commercial content moderation is a dispersed set of practices by which companies protect their platforms and brands. It provides the illusion of automation by relying on precarious labor:

the work is almost always done in secret for low wages by relatively low-status workers, who must review, day in and day out, digital content that may be pornographic, violent, disturbing, or disgusting. The workers act as digital gatekeepers [...and] play a significant role in crafting the flavor of a site and deciding what is permissible and what crosses lines into removable territory. (p. 147–148)

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