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Towards Algorithmic Luddism: class politics in data capitalism

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ABSTRACT

This article examines responses to inequalities (re)produced by algorithms, particularly affecting disadvantaged social strata. Positioning class politics at the centre of the analysis of data capitalism, we turn attention to emerging pockets of collective action against algorithmic control. Drawing parallels to the Luddite movement of the nineteenth century, we develop the notion of Algorithmic Luddism along three intertwining tenets: refusal, resistance and re-imagining algorithmic futures. We attempt to reclaim Luddism from its reputation as an anti-technology movement towards one that centres around algorithmically accentuated inequalities. Advancing theorisation on social movements *for* the digital age, Algorithmic Luddism foregrounds the need for novel understandings of and engagement with class struggle in datafied societies.

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Introduction

It is well recognised that algorithmic systems propel inequality, discrimination and oppression; yet, this recognition often comes with a dystopian lust, or a revelling in digital resignation (Draper & Turow, 2019). As Milan and Treré (2019) note, scholarship is often afflicted with data universalism, paying little attention on political, cultural, and socioeconomic differences. Contexts are flattened, and the politics of datafication and algorithmic systems are assumed to result in similar outcomes for everyone. Further, discussion on the digital environment often disregards social class. While it is recognised that algorithmic systems lead to material consequences for disadvantaged social strata, the 'digital subject' tends to lack class characteristics, let alone class consciousness. In this article, we highlight the necessity to envision class consciousness raising and mobilising against algorithmic politics, in connection to digital labour and beyond. Drawing upon an often-overlooked reading of the history of machine-breaking Luddites (Hobsbawm, 1952; Thompson, 1963), we advance a specific theorisation of social movements *for* the digital age (Charitsis & Laamanen, 2024) focusing on mobilising against

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inequalities exacerbated by data capitalism. Challenging the prevailing narrative that portrays Luddites as technophobes, we emphasise Luddites' class formation and struggle. Alongside recent scholarship on Luddism (Mueller, 2021; Merchant, 2023), we introduce Algorithmic Luddism as a concept epitomising class-based mobilisation against dominant algorithmic politics, pervasive datafication processes and the algorithmic foreclosure of the future.

When examining the societal implications of algorithms and related technologies, we must consider the broader social context in which they operate. Instead of focusing on what technology does, attention needs to be paid to 'who it does it for and who it does it to' (Doctorow, 2021). Data-driven algorithmic governance can reinforce inequalities as it engenders new forms of racist, ageist, ableist, sexist and poverty-based discrimination and marginalisation (Ferguson, 2017; Kayser-Bril, 2019). From education to policing, when algorithmic predictions are combined within rigid decision-making systems, outputs tend towards self-fulfilling prophecies, constituting a form of temporal governmentality that forecloses futures and denies alternative possibilities (Sheehey, 2019). As disadvantaged social strata are disproportionately targeted and punished by algorithmic governance, people with certain skin tones, home addresses, or socio-cultural traits inevitably produce data that leads to discriminatory outputs from algorithmic systems (Charitsis & Lehtiniemi, 2023).

Despite the emergence of pockets of resistance, algorithmic management systems are increasingly being adopted across various industries and public sector institutions. The notion of Algorithmic Luddism, we argue, positions class analyses on algorithmic control centrally and highlights the potential of unmaking data extraction technologies and algorithmic systems. The struggle between capital and labour that historically fuelled Luddism (Hobsbawn, 1952) thus persists; yet, as algorithmic control extends beyond the workplace, class formation and mobilisation are no longer confined to traditional labour settings. Much like the mechanised looms that transformed the social order of the Industrial Revolution, algorithms reorganise social processes as their mastery creates new powerful elites (Burrell & Fourcade, 2021). The Luddites engaged in acts of violence refusing to accept that machines would only benefit elites while leading to a decline in workers' living standards. Our objective is to appropriate Luddism as a progressive imaginary for just futures, in which algorithms are not used to exacerbate societal inequalities. Algorithmic Luddism highlights the collective politics of refusal and resistance but also attempts to re-imagine algorithmic futures.

The article is structured as follows. First, we discuss how algorithmic governance jeopardises individuals, particularly those in underprivileged social strata. Focusing on class relations, we pay particular attention on how they are reshaped under data capitalism. We then showcase Luddism as a movement that shaped class consciousness from the Industrial Revolution onwards. Drawing parallels between historical and contemporary collective action against disruptive technologies and reorganising of the social order, we develop three tenets for Algorithmic Luddism: refusal, resistance, and re-imagining the future. Our analysis contributes to critical data and algorithmic studies by highlighting class politics and the potential of collective action by those subjected to algorithmic governance.

Inequalities and class antagonisms in datafied societies

Algorithmic systems exacerbate existing systemic and systematic discrimination and segregation. Benjamin (2019) introduces the term ‘New Jim Code’ to shed light on segregation and discriminatory designs of algorithmic systems, drawing parallels to US racial segregation legislation known as the ‘Jim Crow laws’. Old, unethical and illegal discriminatory practice of redlining—institutions denying people from minority communities or deprived neighbourhoods access to their services—finds digital reincarnation in ‘weblining’ (Schneier, 2016) or ‘technological redlining’ (Noble, 2018). The automation of the UK welfare system is reported to aggravate health and financial risks for poor people (Big Brother Watch, 2018). Sorting algorithms used by employment agencies assign lower scores to women and disabled people (Kayser-Bril, 2019) while automated welfare fraud detection systems target poor and minority populations (Toh, 2020).

These varied examples show how familiar sources of inequalities—socio-economical position, gender, ability and race—are deepened in the discriminatory practices and policies of algorithmic systems. This should not come as a surprise: inequalities and class antagonisms are historically inherent and inevitable features of capitalism. For Marx, the private ownership of the means (i.e., technologies) of production enables the exploitation of labour. This engenders divisions between the bourgeoisie, the capitalist class who control the means of production and extract surplus value through labour exploitation, and the proletariat, the working class who are compelled to sell their labour power for mere subsistence (Marx, 1976). While social classes pre-existed capitalism, Marx and Engels (1955) note that capitalism simplified class antagonisms by creating a more polarised landscape: ‘society as a whole is more and more splitting up into two great hostile camps, into two great classes directly facing each other: bourgeoisie and proletariat’ (p. 10). Turning the scheme on its head, Cleaver (1979) proposes a definition of capitalism rooted in the imposition of labour which offers a productive lens for class struggle. In Cleaver’s conceptualisation, capitalism is based on coerced labour, and the working class comprises those individuals upon whom capital can impose labour.

While Marx is not the only philosopher to emphasise the importance of class relations in capitalism, his social theory uniquely builds around the concept of class, which would nevertheless remain underdeveloped for decades (Chibber, 2008). Nicos Poulantzas and Erik Olin Wright were instrumental in advancing Marxist class theory since the 1960s. Where Poulantzas (1975) acknowledges that the position attained by social agents in the production process plays a significant role in determining social class, he maintains that economic criteria are not the only determinants. For Poulantzas, social classes are defined by the ‘ensemble of social practices’ that also comprise political and ideological relations (Poulantzas, 1975, p. 14). Wright (1985), on the other hand, places emphasis on exploitation as the core dimension that defines class relations. He notably posits that individuals may occupy contradictory class locations as class positions are determined not only by control over the means of production, but also by control over labour processes and investments. Corporate managers and small business owners exemplify such contradictory locations.

A thorough class analysis requires examining the intricacies of class structure, formation, and struggle. Class structure explains actors’ positions in the production process, class formation refers to how individuals in similar class positions develop a sense of

shared identity and collective interests, and class struggle signifies the contentious mobilisation towards those shared interests (Chibber, 2008). In his seminal account on the English working class, Thompson (1963) explains that ‘class happens’ when social agents develop a sense of social identity and actively pursue collective interests that stand in opposition to the interests of other group; Poulantzas (1975) stresses that class can only exist within the class struggle.

As we will discuss further below, nineteenth century industrialisation ignited class struggle impelled by the unequal distribution of ownership over the technologies of production and displacement of previous artisanal identifications. Importantly, the Industrial Revolution was an era that combined advances in science and technology with formidable changes in the social order.

Similar transformations of the social order are taking place in data capitalism. As algorithmic systems make inroads into social institutions, class antagonisms revolve around the ownership and control of data (Wark, 2019). At least two new societal divisions are emerging. The first division is between data rich and data poor (boyd & Crawford, 2011). Hintz et al. (2017) highlight the growing divide between those who generate data and those who have the ability to capture and utilise it. A division rooted in knowledge emerges: those who know are pitted against those who are known (Zuboff, 2019). Similarly, Burrell and Fourcade (2021) note that algorithmic governance has given rise to two antagonistic classes: on the one hand there is the coding elite who have the means and the expertise to control and extract value from data. On the other hand, we find the cyberariat who face growing marginalisation while serving as ‘data cows’ for the coding elite.

The second, related but distinct, division relates to social consequences of algorithmic sorting. Nurturing and mobilising conventional group identities can take concerted effort in data capitalism (compare, for example, the ease of organising a shop floor versus a microwork platform). Digital platforms foster a culture of connected individualism that tends to create passive users, micro-targeted through surveillance (Zuboff, 2019) normalised enough to induce a sense of helplessness and even resignation (Draper & Turow, 2019). Still, algorithmic sorting also recategorises people and simultaneously creates possibilities for the formation of new, unconventional collectives among its subjects (Kear, 2022): for example, credit scores and other algorithmic scores unify individuals when aggregate scores are created across collectivities, such as neighbourhoods in the credit scoring case. Collectivities, as Kear points out, may emerge as active ‘classes for themselves’ pursuing collective interests through resisting, contesting, protecting, or improving their collective algorithmic score.

While capital seeks to establish a working ‘class in itself’ through the imposition of labour, the working class transforms into a ‘class for itself’ through its resistance to coerced labour and the reduction of individuals into mere producers of surplus value (Cleaver, 1979). Data capitalism also creates a ‘class in itself’ as it strives to colonise human existence through data appropriation (Coudry & Mejias, 2020), thus turning users into constant producers of surplus value. Following Marx, Fisher (2015) emphasises the need to explore and grasp those defining moments of class consciousness development, the emergence of a ‘class for itself’ in the digital realm. Before delving deeper into the mobilisation of such algorithmically instigated collective action, we go back two centuries to explore the best-known technology-motivated class mobilisation – Luddism.

From these dark satanic mills, Luddism

Luddites are typically portrayed as opponents of technological progress, rejecting new technology which replaced skilled weavers with unskilled machine operators. However, Thompson (1963) argues that Luddites' rejection was not driven by technophobia, but rather displays a protectionist resistance to limitless expansion and accumulation of the burgeoning capitalism. What Hobsbawm (1952) describes as 'collective bargaining by riot' was the Luddite method to oppose how new technology changes the social order. Thus, resistance was targeted at the systemic implications of technology rather than technology *per se*.

In their collective action, bands of knitting machine operators gathered under the cover of darkness and sabotaged the machines of several employers. Luddites accused employers of using this new technology of the mechanised loom to drive down wage rates and replace certain skilled worker groups. The Luddites' aim was not necessarily to completely remove machines or stop technological progress, but to influence the labour process by pressuring employers to change working conditions; for their part, Luddites heralded the formalised unionisation of the labour force a few decades later. Luddites sought to destroy machinery detrimental to the common good, 'machines hurtful to Commonality': these machines benefited the entrepreneurial elite, not the broader community (Merchant, 2023). Jones (2013) reminds us that Luddites were technologists themselves: they were expert machinists who fought to preserve their livelihood with the right to their artisanal production methods and technologies.

Faced with displacement, poverty and hunger, the Luddites sought to build working class solidarity in the fabrication of an almost certainly fictitious legendary figure, Ned Ludd who had (supposedly) been responsible for the breaking of two knitting frames. These industrial-era Anonymous announced their intentions with a written message signed by Ludd. He not only had symbolic value figure-heading working class resistance, which at worst carried the death penalty, but also served as an ideological glue embodying the traditions and principles of working communities (Randall, 2004). Luddites' organised militancy illustrates a high degree of planning and contributed to the radical mobilisation of the working-class (Thompson, 1963). Machine breaking started in Nottingham in March 1811, spread around Nottinghamshire that same year, and to Yorkshire in 1812. Within a year's time, a thousand machines had been destroyed, particularly in localities where industrialisation had led to deteriorating living conditions. The government, acting under the pressure of the Napoleonic wars, took a forceful stance against the movement: they engaged the military and executed a law prohibiting industrial vandalism with arrests, deportations and death penalty (Hobsbawm, 1952). Spies were planted amongst the Luddite ranks which, along with forceful suppression, led to the ultimate demise of the Luddite movement (Thompson, 1963). Luddites, however, inspired subsequent organising around demands for labour reforms and universal suffrage in the emergent trade union movement.

Often misrepresented, history has not been kind to the Luddite tradition. Luddite has become a derogatory term to designate fear and backwards attitudes towards technological advancement. In modern discourse, Luddism is synonymous to technophobia with the Luddite depicted as a deluded technophobe. For example, in the late 1990s when the US government took Microsoft to court for breaching antitrust laws, the company's

leading defence attorney John Warden rejected the basis of the indictment claiming that the legal proceedings were nothing more than ‘a return of the Luddites, the 19th Century reactionaries, who, fearful of competition, went around smashing machines with sledgehammers to arrest the march of progress driven by science and technology’ (Jones, 2013, p. 35). A similar ridiculing attitude can also be found in academic technology studies where, for example, Leben et al. (2015) juxtapose between the ‘Zuckerbergs’ and ‘Luddites’, the executives who are eager to embrace or are fearful of technological advancements. However, recent critical studies attempt to encourage a different understanding of the Luddite tradition, arguing against the reductive depiction of Luddites as irrational and reactionary technophobes (Mueller, 2021). Seeing AI technology potentially encouraging novel forms of fascisation of society, McQuillan (2022) contends that Luddites’ reaction to the technological foreclosing of their future can help to model contemporary refusal and resistance. Similarly, Sadowski (2020) identifies parallels between the excessive demands for productivity of the Industrial Revolution and the intensification of value extraction processes under digital capitalism and claims that as digital capitalism aims at colonising all aspects of human existence, so too resistance needs to escape the confines of the workplace. Sadowski’s Luddism as policy would ‘unmake’ much of the technological induced harms; a contemporary form of Luddism could thus become a social movement *for* the digital age (Charitsis & Laamanen, 2024).

Algorithmic Luddism

While the allegory of the progress of science and technology threatened by the backwards mob clearly marks contemporary discussion, algorithmic technologies, similarly to mechanised looms, are transforming the dynamics of economic power and revising social order. A powerful case to illustrate these implications takes place in algorithmic management of platform-based gig work (Bucher et al., 2021). Growing since the 2008 Great Recession, gig work originally drew participants in with the promise of ‘liberation’ from the yoke of traditional wage-labour, such as being able to organise the day’s work as fits the individual situation (Schor, 2020) or in forms of neo-artisanal work (Hesmondhalgh & Baker, 2010). Such flexibility has proven illusionary and platform-based gig work is equated with exploitation from both platform owners as well as consumers who flock to the services (Laamanen et al., 2018). Exploitation may further be amplified by the fact that many workers from disadvantaged backgrounds may seek access to the labour market through platforms (e.g., Alyanak et al., 2023).

Algorithmic automation of labour processes obscures the mechanisms that rank work performance. The notorious ‘algorithmic boss’ produces friction with its arbitrary and absolute people management. Assuming managerial roles, algorithms intensify labour processes while dystopian narratives about the impending end of work serve as rhetorical devices that rationalise labour market deregulation and the erosion of working conditions (Aloisi & De Stefano, 2022). For example, algorithms obfuscate gig allocation by hiding their central details (e.g., length or destinations), setting response and quarantine times to accepting gigs, or assigning performance times. Additional social control is introduced with information asymmetries. Mechanisms that aim to increase consumer trust, such as peer-ratings, can come to determine gig worker inclusion (and exclusion) to offer services on the platform. Platform ranking criteria determine

the workers' ability to attract clients. Their opaqueness and unpredictability renders workers vulnerable to what Rahman (2021) calls the 'invisible cage', a situation in which managerial data collection, monitoring, evaluation and categorisation by algorithm imply ever shifting rewards and sanctions.

Attempting to escape the invisible cage, gig workers have engaged in mobilisations across the world. Pockets of opposition have emerged in platform contexts, ranging from protest against unfair treatment of platform workers to collective efforts to subvert the algorithm's function. Finally, some movements are emerging around reimagining business platform models. Beyond worker owned and controlled organisational structures, cooperative forms of platform organisation also strive for control over the algorithm (Scholz, 2023).

Drawing inspiration from such collective acts against algorithmic control, we introduce Algorithmic Luddism, which highlights class formation under algorithmically accentuated inequalities, and proposes a progressive imaginary for just algorithmic futures. Algorithmic Luddism, we suggest, involves collective politics by the subjects of algorithmic systems. These politics encapsulate the refusal of, and resistance to, the consequences of technologies built by the coding elite (Burrell & Fourcade, 2021). It involves politics of deceleration (Mueller, 2021) to refuse technological progress for the sake of it, oppose capital's greed and call to develop grassroots organising and even militant campaigning. Algorithmic Luddism recognises that algorithms that maintain asymmetric power relations in the workplace are not worth keeping or fixing (and thus need to be unmade) (Ausloos et al., 2022). Importantly, Algorithmic Luddism should also involve attempts to re-imagine algorithmic futures.

In the following we further unpack three tenets of Algorithm Luddism already suggested above: refusal, resistance and re-imagining. The tenets of Algorithmic Luddism follow some general principles of collective action (see Snow & Soule, 2010) elaborating how experiences and shared grievances may lead 'collective action in response to pervasive datafication processes and dominant data politics' (Charitsis & Laamanen, 2024, p. 332). Even if algorithmic management of work is an illustrative case for thinking about how algorithmic technologies transform power dynamics and revise social order, Luddite politics embedded in refusal, resistance and reimagining extend beyond the workplace. As Mueller (2021) attests, resistance to technology has historically not been confined to the workplace either, but represented 'conflicts of authority' and the infiltration of technologies to everyday life. As we have discussed, algorithmic governance can reinforce inequalities, discrimination and marginalisation in various walks of life. In an environment of pervasive data collection, individuals from disadvantaged communities inevitably generate data that can be used in discriminatory ways (Charitsis & Lehtiniemi, 2023).

When algorithmic predictions are combined within rigid decision-making systems, outputs tend towards self-fulfilling prophecies, constituting a form of temporal governmentality that forecloses futures and denies alternative possibilities (Sheehey, 2019). Notably, as we will also discuss, if relevant divisions in the digital society run along divides defined in terms of data-based knowledge production, as suggested by Burrell and Fourcade (2021), foreclosure of futures beyond labour become relevant in terms of class struggle. Accordingly, Algorithmic Luddism has wider reaching societal implications and applicability.

Refusal

Refusal, as a tenet for Algorithmic Luddism, suggests a starting point of resistance, and a deliberate move towards reimagining algorithmic futures. The Luddites refused the deterioration of their livelihoods in the name of an inevitable march of technological progress. Technology employed for the benefit of machine owners was refused due to the detrimental effect on their independence and livelihoods. Luddites' refusal was a reaction to the changing of the social order where science, technology, capitalism and politics intersected to create a mismatch of power, wealth and security (Thompson, 1963): 'the resistance to the machine was quite consciously resistance to the machine in the hands of the capitalist' (Hobsbawm, 1952, p. 62),

We witness the same dynamic at play today in the opposition to the algorithmic management of (platform) work. As the expansion of data capitalism is tangibly experienced in various facets of everyday life, interest in wholesale refusal as a critical response grows, often in the form of digital disconnection (Lomborg & Ytre-Arne, 2021). Individualised pushback against the harms of datafication by avoiding datafication itself (Dencik, 2018) can include technological means of self-protection in encrypted forms of communication, privacy-enhancing tools or disconnections. People in positions vulnerable to surveillance attempt to escape the digital gaze, without actually subverting underlying systems, through employing multiple profiles, removed or cropped images and lurking as tactics of invisibility (Talvitie-Lamberg et al., 2022). Relying on self-protection nevertheless responsabilises the individual (Dencik, 2018), signifying acceptance of existing structures and individually coping within them. Tech savvy users even attempt to play with and manipulate algorithmic outcomes; however, such algorithmic resistance also emerges from within the system and in this sense remains reformative rather than transformative (Velkova & Kaun, 2021).

Attempts to escape the algorithmic gaze make clear that living with datafication and algorithmic systems involves their (selective) refusal, but also the search for agency and autonomy within them (Savolainen & Ruckenstein, 2022). These systems structure behaviour but do not fully determine it, and while resignation may be systematically cultivated (Draper & Turow, 2019), there are other feelings besides helplessness. Exemplified here is an individualised understanding of means to live with, cope or resist algorithmic systems, making the possibilities to do so dependent on an individual's skills, and literacies (Dogruel et al., 2022) well known to depend on societal divides.

Thus, today's technoscientific challenges of the social order as exemplified by the platformed workplace call for new forms of politics of refusal. The empowering and transformative potential of refusal represents a political stance that challenges systems of legitimacy and authority while asserting independent political sovereignty (Simpson, 2014). Refusal is not simply a rejection of the world, but unveils a profound commitment to building a more just world (Honig, 2021). It can be a powerful tool of world-building, as it is through the stories of the marginalised and the forgotten that counter-narratives can emerge, as exemplified by Ned Ludd. Honig (2023, p. 233) stresses that such 'fabulation is the domain of imagination and possible futures, forms of freedom and equality that are glimpseable in our present, but not yet fully realizable'.

Thus, the politics of refusal can involve the reimagination of individual being and collective belonging within technologically mediated environments (Gangadharan, 2021).

Feminist critiques of data practices underscore the potential for data to be employed in violent and oppressive ways, necessitating active refusal and collective resistance in response (D'Ignazio & Klein, 2020; Benjamin, 2019). Refusal and resistance are interconnected tools that operate in a dialectical manner, together empowering collectives to solidify their positions (Prasse-Freeman, 2022). Refusal needs to go beyond simply turning away from dominant assumptions, premises, and convenient liberal solutions, such as abstract notions of fairness (Barabas, 2022); refusal instead serves a constructive purpose, creating opportunities to re-evaluate foundational assumptions in sociotechnical projects and through such re-evaluation, allows for the active reimagination of just futures. Feminist data politics in particular foreground the need to 'refuse harmful data regimes and commit to new data futures' (Cifor et al., 2019). A foundational principle for Algorithmic Luddism can therefore be located in refusing technological inevitability, enabling forms of resistance to emerge and alternative algorithmic futures to be considered.

Resistance

As discussed above, algorithmic management of work opens up new terrains of inequalities, but also of class warfare (Rogers, 2023). Employing emergent tactics that Kellogg et al. (2020) call 'algoactivism', class struggle encompasses organising on digital platforms; framing the use of algorithms in terms of fairness or transparency, and legal mobilisation around issues including surveillance or data ownership. While authoritarian control and inequalities increase with the integration of algorithms to management systems, when workers become technologically connected, they can develop collective solidarity and explore novel forms of organising (Cini, 2023). For example, Schaupp (2021) underlines how collective technocultures turn individual acts of technological disobedience into strategic collective practices, ranging from manipulating the algorithm to crashing digital systems. These emergent practices constitute forms of algorithmic resistance, actively contesting the pervasive influence of algorithms in society.

Bonini and Treré (2024, p. 23) define algorithmic resistance as '(1) an act, (2) performed by someone upholding a subaltern position or someone acting on behalf of and/or in solidarity with someone in a subaltern position, and (3) (most often) responding to power through algorithmic tactics and devices'. They further delineate two distinct dimensions of algorithmic resistance: the first pertains to resistance facilitated by algorithms, while the second, which is the primary focus of our argument, involves actions directed against algorithmic power and politics.

As the stark realities of algorithmic societies are becoming increasingly apparent, algorithmic resistance is also increasingly mounted by individuals and collectives. Even public figures responsible for digital policies that harm vulnerable populations feel compelled to acknowledge the potential dangers posed by automation. In his address to the United Nations General Assembly in September 2019, Boris Johnson focused on these transformations of the social order underscoring the pitfalls of digital technologies. Highlighting the 'unintended consequences of the internet' and sounding the alarm about the emergent epoch of 'digital authoritarianism', his speech echoed several concerns that are increasingly raised by critical scholars, digital activists and investigative journalists. While Johnson condemned anti-science sentiments, he warned about the potential harmful effects of several technological advancements concerning pervasive surveillance

practices, digital giants' erosion of people's privacy, the proliferation of sensors in the smart home and city, the rise of the internet of things, algorithmic decision-making and artificial intelligence. Touching upon algorithmic decision-making determining life chances, Johnson questioned whether algorithms will be able to take into consideration extenuating circumstances, eloquently wondering 'how do you plead with an algorithm'.

Less than a year after this address, Johnson's government's policies led to students taking to the streets in protest against the use of algorithms in determining and restricting their life opportunities. Due to the global pandemic, the 2020 secondary examinations in the UK were cancelled. Students received their A-level grades based on teachers' assessments, but to avoid grade inflation, these assessments were moderated by an algorithm using both the school's and the student's historical performance as inputs. The algorithm downgraded almost 40% of teacher assessments (Adams et al., 2020). Engendering a form of 'academic redlining', the algorithm was found to be more stringent for students coming from schools with lower historical grades and higher student numbers. Effectively, it amplified class division in access to education by discriminating against students from lower socio-economic backgrounds while favouring students from private schools. The algorithmic grading system's decisions threatened students' life chances by determining university admission. This threat of foreclosing the future provoked a backlash across the UK, culminating in students chanting 'Fuck the Algorithm' in protest outside the Department of Education. The mobilisation proved successful, and the algorithm was eventually dropped as grading was solely based on teacher assessments.

Students thus resisted against the detrimental effects of algorithmic politics foreclosing their future. Students' resistance engaged collective class interests, where class refers to socio-economic divisions but also concerns access to the means and expertise for algorithmic knowledge production. In that respect, the A-level students' case shares similarities with gig workers' mobilisations, as both demonstrate the transition from a 'class in itself' to a 'class for itself,' pursuing collective interests. However, students differ from platform gig workers in their more conventional group identity supported by a physical space for organising, compared to gig workers dispersed and individualised interactions. Nevertheless, the students' mobilisation is an illustrative example that pervasive datafication can drive mobilisation (Charitsis & Laamanen, 2024) and foster collective, class-based acts of algorithmic resistance beyond the workplace.

Despite the increasing emergence and even occasional success of individual and collective opposition in the forms of algorithmic refusal and resistance, in terms of Luddite politics, they are points of departure. The third tenet, reimagining of algorithmic futures, involves turning refusal and resistance into collective acts of determining what in algorithmic developments is worth keeping and what should be unmade.

Re-imagining

Luddites' opposition was to the relationships of domination that production technologies engendered (Tarnoff, 2019). Before resorting to force, the weavers petitioned both capitalists and the government, and even presented proposals to taxes on technology and alternative employment for impacted workers to prevent harm to entire communities

(Merchant, 2023). Yet, neither the government nor the factory owners responded to the expressed grievances, let alone allowed any form of collective bargaining (the Combination Acts from 1799 and 1800 prohibited unionisation). Ultimately, through the act of smashing machines, the Luddites aimed to dismantle these relationships of domination, paving the way for the emergence of non-exploitative relationships from below (Tarnoff, 2019) and towards co-determination of the future. The intensified embedment of digital media across social and private lives and the dominance of largest tech companies has resulted in a ‘techlash’. Such a backlash, even if producing refusal expressed as digital disconnection (Lomborg & Ytre-Arne, 2021) is not necessarily targeted at technologies *per se*, but rather at their effects on personal and societal level. Like the Luddites, when platform workers push for alternative forms of platform organisation and equitable forms of algorithmic management, they are not opposing algorithmic technologies as such, but rather demand technologies that positively impact their lives.

The challenge at hand entails navigating a shift from refusing and resisting algorithmic structures towards a constructive reimagination of just algorithmic futures. As Markham (2021) maintains, current technologies and their trajectories tend to be naturalised to the extent that they appear inevitable – it is difficult to reimagine technologies without ending up reproducing hegemonic trends. Benjamin (2024) emphasises how an imagination grounded in solidarity and interdependence, combined with strategic planning and organisation, is essential for challenging the hegemony of existing structures and dominant narratives. To draw from Erik Olin Wright’s (2010) notion of real utopias, there is a need to envision ‘real algorithmic utopias’ that would not only attack dominant algorithmic politics and practices but also illustrate possible alternatives to algorithmic futures. Wright (2007) argues that a radical critique recognises and tries to alleviate the harms produced by existing socioeconomic structures by formulating and implementing alternative models and structures. Real utopias, therefore, refer to ‘institutional designs that simultaneously try to embody emancipatory ideals in a serious way while still being attentive to practical problems of viability and sustainability’ (Wright, 2016, p. 60).

In *Autonomous Technology*, Langdon Winner (1978), one of the leading scholars of the politics of technology in the past decades, proposes a promising possibility for thinking about how alternative technologies might function. Sensing the impending automation revolution, Winner famously warned against technological inevitability and neutrality in technology politics. At the same time, he observed the general tendency of critics to, first, note the wrong-headed and oppressive character of existing configurations of technology; second, to continue by suggesting solutions that build on the participation of those affected by technologies in their design and operation; and, third, to suggest principles that should guide technology development. Such proposals are predicated on the notion that existing technologies and connections need to be improved or repaired to be made better. However, Winner instead advances a notion of economic and political Luddite thought and practice, such that could inspire the search of alternatives also in the algorithmic age.

In Winner’s Luddite politics, technological refusal explicitly leads to something more than cutting connections or technophobia. Luddism, in Winner’s thinking, plays a dual role. First, the real field is already taken: to start constructing new technologies, something needs to be done with technologies that currently occupy physical and social space – that something, in Luddite thinking, needs dismantling. But, second, dismantling

existing technologies also offers a possibility to learn what they do. Winner therefore argued for an ‘epistemological Luddism’ as an orientation where refusal, dismantling and disconnection is a means of knowledge production. In epistemological Luddism, taking technology apart would not constitute a solution in itself, but would be a mode of inquiry that enables the examination of our relation to technology, one carefully selected connection, device or technique at a time. Historically, resemblances of epistemological Luddism can be found in computational dissent since the 1950’s where, as Bassett (2021, p. 6) suggests, moments of refusal and resistance have advanced ‘an alternative understanding of the technological and can generate an alternative account of the actual and potential impacts of the computational’.

The tendency to try and produce technological alternatives like platform infrastructures on top of existing technologies and connections might offer at least a partial reason for the difficulty of imagining alternatives to hegemonic structures. The Luddite politics of refusing, resisting and reimagining can thus provide a solution. One of the most fundamental principles governing how the digital domain operates, informed individual consent on data collection and use, offers an example. The asymmetries of data production lie at the heart of the digital economy’s power imbalances that are governed but also enabled by making individuals responsible for their data. Proposed corrective measures nevertheless continue to rely on and propagate the notion of the individual right to make choices for themselves (Lehtiniemi & Ruckenstein, 2019). Putting forward an alternative on the basis of feminist and postcolonial thinking in bioethics, Benjamin (2016) offers an example of fundamentally refusing and then reimagining data governance by turning the established premise of ‘informed consent’ upside down. Benjamin rejects the dominant ways of producing knowledge and instead of informed consent, develops the notion of ‘informed refusal’ where data subjects’ refusal to participate in data collection and processing would be institutionalised in a similar way as the consent to participate currently is. Informed refusal ‘is seeded with a vision of what can and should be, and not only a critique of what is’ (Benjamin, 2016, p. 970).

In contrast to liberal remedies based on the principle of informed consent that primarily prioritise individual rights and agency, informed refusal underpins initiatives (such as the feminist organisation Coding Rights in Brazil and the Data for Black Lives movement in the United States) that foreground intersectional considerations of class, race, and gender, and actively reimagine and strive towards just data-driven algorithmic futures. Similar emergent projects, movements, and collaborative endeavours that prioritise collective interests constitute what Tarnoff characterises as the ‘third wave of algorithmic accountability’. Complementing Pasquale’s (2019) analysis on the trajectory of algorithmic accountability, Tarnoff (2023) contends that, alongside the first wave dedicated to mitigating harms through enhancements to extant systems, the second wave of refusal aimed at abolishing damaging algorithmic structures, a third wave concerned with developing alternative, equitable algorithmic configurations is now emerging.

Conclusion

Critical scholarship often succumbs to dystopianism and data universalism (Milan & Tréré, 2019), neglecting class divisions and overlooking political and socioeconomic contexts. Similarly, the invocation of ethics by Big Tech companies, ostensibly to counter the

perils of technological advancements, acts as innovation solutionism that not only serves as ethics-washing but further advances data intensive capitalism (Steinhoff, 2023). AI ethics risks becoming a buzzword term used by academics and corporations, lacking any substance if it fails to address labour exploitation in the AI industry (Williams et al., 2022).

Against such approaches, we argue that as algorithmic harms become increasingly prominent, it is vital to explore collective forms of refusal and resistance which confront data politics and practices that increase inequalities and extend unjust social structures. Against the corporate cultivation of digital resignation (Draper & Turow, 2019), emerging individual tactics of resistance may provide a much-needed sense of comfort especially for vulnerable individuals (Talvitie-Lamberg et al., 2022) while attempts to ‘fuck with the algorithm’ can enable disruptive tactical politics (Heemsbergen et al., 2022).

While it may be presumed that the working and living conditions that propelled the Luddism uprisings bear no semblance to our present datafied societies, striking commonalities can nevertheless be detected. The Luddites mobilised in reaction to the intensification of production and limited collective voice in the labour process, both equally present features of data capitalism. The Luddites’ advancement was suppressed with infiltration and violence, whereas Big Tech not only constantly monitors employees with digital surveillance mechanisms but also actively engage in union busting tactics. Amazon, in particular, is well known for its strong anti-union stance that includes unethical if not unlawful practices including the use of modern-day spies (Kassem, 2022; Logan, 2021): data-driven algorithmic control of work enables the regression of working conditions to standards prevalent in earlier industrial eras (McQuillan, 2022). Finally, both historical and Algorithmic Luddism are moves from living dominated by technologies to living with them, highlighting the necessity to partake in the making of our collective digital futures.

With the concept of Algorithmic Luddism, we shift our focus to collective mobilisations against algorithmic politics and practices that enrich a few while subjugating many. As the A-grading example shows, data capitalism creates classes in themselves who when organised develop in classes for themselves turning their wrath against technologies that compromises their future. Their grievances, however, are actually aimed at the political and coding elites that algorithmically advance their own interests while exploiting the vulnerable and underprivileged.

While the nineteenth century Luddite movement was violently stopped, its legacy of mobilising the working-class identity carried over to the labour movement. In industrial capitalism, the factory served as the central arena of both control and contestation; in data capitalism control and exploitation extend beyond the workplace and the work day, encompassing various aspects of private and social life. As algorithmic colonisation of life becomes all-encompassing, resistance must also escape the confines of the workplace and develop in multifarious ways. Refusing to accept the inevitability of technological progress that subjugates segments of the population for the benefit of a privileged few can inspire and instigate collective forms of resistance against the presumed indomitable domination of data capitalism. However, refusal and resistance alone are hardly sufficient if not followed by a reimagining of alternative possibilities for algorithmic futures.

For analyses to be fruitful, they must go beyond mere description and exhibit prescriptive aspirations, providing a vision of what is to be done (Tarnoff, 2019). With

Algorithmic Luddism, we have therefore underscored how refusal, resistance along with reimagining are indispensable principles for mounting opposition, challenge algorithmic politics and practices hurtful to commonality, and partake in shaping our common algorithmic futures.

In this conceptual paper, we have developed the notion and proposed a potential framework for understanding Algorithmic Luddism. Empirical research focusing on relevant projects and movements can contribute to further refine, adapt, and clarify this concept. Such studies can also illuminate the challenges and potential limitations that these efforts may encounter, suggesting strategies to overcome them.

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