

# Cycles of Alienation: Technology and Control in Digital Communication

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**ABSTRACT:** The Marxian concept of alienation, usually identified with the factory, has of late undergone a number of redevelopments to account for proletarian activity on digital networks. These positions are, however, marked by disunity and conflict in their interpretations of digital technology and class activity. This essay considers several Marxian theories of alienation in high-technology capitalism. From the findings, I suggest a theory of alienation in digital communication that highlights the skill invested in users through human-technology co-developmental processes, what I call cycles of alienation.

**KEYWORDS:** alienation, technology, Marxism

## Introduction: Alienation and Communication in High-Technology Capitalism

Among scholars in what Christian Fuchs and Nick Dyer-Witheford (Fuchs 2012; Fuchs and Dyer-Witheford 2013) call Marxian Internet Studies (IS), the theory of alienation has generally remained in favour.<sup>1</sup> Its development in IS has, however, been uneven. Competing traditions claim alternative moments of alienation germane to their program and objects of study.<sup>2</sup> Dissimilar interpretations of Marx indeed colour the use of alienation today, with its relevance tied not only to combined and uneven moments of production in contemporary capitalism, but to alternative epistemological traditions within Marxism.

1 See, for example, Hardt and Negri (2000, 2004), Dyer-Witheford (2010), Andrejevic (2011), Fuchs (2012), Fuchs and Dyer-Witheford (2013), and Fuchs and Sevignani (2013).

2 This is much like the development of alienation within and outside of Marxism more generally. See Musto (2010).

As I've argued elsewhere (Greaves 2015), Marxian IS has shown a tendency toward polarization when dealing with user-technology relationships. The field oscillates between an instrumental relation to technological change (Hardt and Negri 2000, 2004) and a determining technological form that acts as a proxy of capital (Dean 2005, 2012; Fuchs 2013; Fuchs and Sevignani 2013). The operative distinction in theories of alienation in Marxian IS is likewise found in the dominating power of one pole within human-technology relationships. This is perhaps to be expected, as the problem of subject and object is the pivot upon which Marx's theory of alienated activity turns.

Before comparing contemporary theories of alienation in Marxian IS, I begin with some general remarks on alienation in Marx, developed through readings of the *Economic and Philosophic Manuscripts of 1844*, the fifteenth chapter of *Capital Volume*

*One*, “Machinery and Large-Scale Industry,” and an originally unpublished chapter of *Capital*, “Results of the Immediate Process of Production.” I argue that alienation and alienated activity are essential to understanding Marx’s conception of machinery as an active relationship determined by class struggle. I also draw from labour-process theory’s design critique of industrial technology – specifically, implications from David Noble’s work (2011) which suggest that the form of alienated activity in capitalist production is determined in struggle between the working class and capital. I introduce the autonomist-Marxist concept of ‘cycles of struggles’ to capture the historical circumstances through which alienation proceeds, what I term ‘cycles of alienation.’

With the cycles of alienation concept in place, I review prominent theories of alienation and digital-communication technology. What I term foreclosure theory, rooted in political economy, identifies the dominant political codification of technology in capitalist construction. The co-development of proletarian user and technology appears in foreclosurist positions as economic subordination and political subjugation. The activity of users is oriented and/or captured by processes of capital accumulation that exceed their control. The agency of digital proletarians, manifest in lines of technological development, is displaced by capitalist ownership, which determines the form of technology and alienated activity.

Opposed to the foreclosurist position of technologically-constituted control, recent work in the autonomist-Marxist tradition discovers alienated activity within affective forms of labour. Michael Hardt and Antonio Negri (2000, 2004) argue that alienation arises in the circuits of production that constitute the dominant form of postmodern capitalism, what they identify as Empire, in somewhat different ways than the Fordist factory. Under conditions of Empire, alienation manifests as estranged potential among proletarians. Of primary interest here is the question of universalized knowledge/skill among a multitude of groups, and whether capital, in raising the skill of proletarians, produces above all, its own grave-diggers. Dyer-Witheford (1999, 2001, and 2010), similarly, develops a critique of alienation in contemporary capitalism through

what Marx identifies as estrangement from our species-being, or separation of proletarians from control over the common direction of our species. Dyer-Witheford (1999:71–72), unlike Hardt and Negri (2000:366–9, 2004:111), however, allows for proletarian estrangement from the technologies that support capital accumulation. It is, therefore, through Dyer-Witheford that I return to the cycles of alienation concept, here in the context of what he terms ‘high-technology capitalism.’

Out of the critique of foreclosurist and autonomist positions, I suggest a theory of alienation in digital communication that highlights the skill invested in users. Returning to the “1844 Manuscripts,” I argue that struggles over the process of production yield the content of alienation and, in turn, suggest possibilities for overcoming the moments of alienation that Marx identifies, what we may call dis-alienating practices.

### Marx, Labour Process, and Cycles of Alienation

While alienation as an economic or philosophic concept predates Marx, it’s in the “1844 Manuscripts” (1992) that alienation first emerges from capitalist social relations. In alienation, Marx historicizes what was in G.W.F. Hegel the problem of the individual’s objectification as such, inverting a philosophy Marx found “standing on its head” (Marx 1990a:103). “For Hegel, the process of thinking, which he even transforms into an independent subject, under the name of the Ideal, is the creator of the real world, and the real world is only the external appearance of the idea. With me the reverse is true: the ideal is nothing but the material world reflected in the mind of man, and translated into forms of thought” (102). Unlike its development by Hegel, alienation is for Marx a particular form of existence that arises with the wage relation, as Marcello Musto argues (2010:82). This is clear from the concept’s elaboration in the “1844 Manuscripts.” Here Marx describes four forms of alienated activity: (1) estrangement from the products direct producers create; (2) estrangement in the processes of production; (3) estrangement from our species-being (our control over human sociality); and our (4) estrangement from one another

(Marx 1992:23–334). Today, alienation appears as coterminous moments of estrangement present in capitalist life. Yet these moments do not emerge fully formed from the foundational estrangement of capitalism. Alienation is historical, but of equal importance is that the abstract, conceptual form of alienation suggests an impellent power.<sup>3</sup> The character of alienation is fluid, its moments determined by, among other things, the imperatives of capital, working-class activity and social power, ideology, and historical circumstances. Maxine Berg notes a similar progression in Marx's discussion of manufacturing. "Though [Marx] clearly intended it to be an abstract model, he included many historical signposts" (Berg 1994:62). In general, we can call this 'the concrete historical character of alienation', and it's most easily seen with the second moment that Marx identifies, in which changes in the labour-process, mediated by class struggle, determine the objective form of alienation in production. In a more recent example than those of Marx's time, managers in postwar American machine shops responded to articulations of class power by machinists with the introduction of technology that relocated skill from unionized machinists to machine programmers (Noble 2011). Capital, put another way, responded to a contumacious working class with technology designed to wrest control over the labour process from workers.<sup>4</sup>

In the "1844 Manuscripts" moments of estrangement appear as a developmental relation – from separation of control over the commodity, to that of labour-process, to life process more generally and our subjective relation one another. Modern labour processes that estrange individuals from their activity within the working day yield individuals estranged from their species-life (Marx 1992:328). Likewise, "an immediate consequence of man's estrangement

from the product of his labour, his life activity, his species-being, is the *estrangement of man from man*" (329–30). The impellent and developmental logic behind alienated activity in the "1844 Manuscripts" is recuperated by Marx in another text unpublished in his lifetime, "Results of the Immediate Process of Production" (1990), originally written for the first volume of *Capital*. The first moment of alienation corresponds analytically to what Marx describes in "Results" as the *formal subsumption* of labour to capital. Subsumption is a specialized term in Marx. It refers to the results of generalized wage dependency confronting forms of labour, as the relations of production now find their determinate moment in the sale and purchase of wage labour.

When a peasant who has always produced enough for his needs becomes a day labourer working for a farmer; when the hierarchic order of guild production vanishes making way for the straightforward distinction between the capitalist and the wage-labourers he employs; when the former slave-owner engages his former slaves as paid workers, etc., then we find that what is happening is that production processes of varying social provenance have been transformed into capitalist production. [Marx 1990b:1020]

Formal subsumption occurs when "the labour process becomes the instrument of the valorization process" (1019). Capital discovers pre-capitalist forms and becomes their manager. During the actual working day, however, the logic of valorization has yet to really impose its transformative potential, and the character of labour power remains essentially pre-capitalist in content. The formal subsumption of labour to capital "does not itself imply a fundamental modification in the real nature of the labour process" (1021). Capital, in this instance, merely oversees the existing labour process, without fostering transformation. Under conditions of formal subsumption, "the relation of capital/labour is marked by the hegemony of the knowledge of craftsman and of workers with a trade" (Vercellone 2007:15). As a preliminary stage, Marx characterizes this circumstance as "the loss of the object," or final product (Marx 1992:235).

The objective and subjective degradation of the

<sup>3</sup> Alienation is commonly read to *compel* behaviour, rather than suggest the impellent power of capitalist imperatives. Thus alienation is alienated or compelled activity, in one form or another. "The worker becomes a slave of his object," as the power over the production process is estranged from its previous holder (Marx 1992:325).

<sup>4</sup> In a more recent example than those of Marx, managers in post-war American machine shops responded to articulations of class power by machinists with the introduction of technology that relocated skill from unionized machinists to machine programmers (Noble 2011). Capital, put another way, responded to a contumacious working class with technology designed to wrest control over the labour process from workers.

worker follows from the first form of estrangement. They are consequences materialized in the processes of *really* subsumed labour, the subsequent stage of development following mere formal subsumption.<sup>5</sup> With this second stage, transformations begin in the labour process toward its intensification. The imperative to improve production begins to appear.<sup>6</sup>

The *social* productive forces of labour, or the productive forces of directly social, *socialized* (i.e. collective) labour come into being through co-operation, division of labour within the workshop, the use of *machinery*, and in general the transformation of production by the conscious *use* of the sciences, of mechanics, chemistry, etc. for specific ends, technology, etc. and similarly, through the enormous increase of *scale* corresponding to such developments. [Marx 1990b:1024]

Under the real subsumption of labour to capital, science is applied to production; specifically technological change augments the labour process. Through this process, the objectification of workers, rooted in the wage relation, is expanded and intensified. Industry is, for example, able to eschew the predominance of handicraft methods through mechanization, as Marx notes in *Capital* (Marx 1990:504). F.W. Taylor (1911) makes a similar claim to the owners and managers of production, arguing in *The Principles of Scientific Management* that rule-of-thumb methods, directed by workers, can be displaced by the careful application of scientific study and calculation to labour process. The application of science by capital allows for the intensification of labour toward the accumulation of relative surplus value, whereas increased surplus value within mere formally-subsumed production may only be generated absolutely, by extending the length of the working day. The real subsumption of labour to capital is thereby the objective form of the valorization imperative that compels the production processes toward constant

and continuous improvement. Capital “has one sole driving force, the drive to valorize itself, to create surplus-value, to make its constant part, the means of production, absorb the greatest possible amount of surplus labour” (Marx 1990:342).

Marx is, again, defining a general tendency, more abstract than concrete. Changes to the labour process are, however, by no means linear nor determined by mere abstraction. While the economic calculations of management materialize in machinery and technique, lines of development in the labour process emerge from the conflicts between capital and workers over the working day, the labour process, and a plurality of other aspects of production. “The establishment of a normal working day is therefore the product of a protracted and more or less concealed civil war between the capitalist class and the working class,” Marx writes (1990:412-3).<sup>7</sup> The activities of workers may, in other words, act as countervailing forces to those of capital in its determination to control and develop the labour process for its purposes. Perhaps the most influential study of this elaborate course is Noble’s *Forces of Production*, which details the different technological choices available to twentieth-century American capital in its drive to automate the labour of skilled machinists. Two technologies appeared as the predominant choices in this pursuit, one “lent itself to programming in the office, and management control over the labour” (Noble 2011:151), while the other resembled the approach used with later player pianos,<sup>8</sup> in which “machinist skill ... was acknowledged to be fundamental and irreplaceable store of the inherited intelligence of metalworking production” (150). The decision by management to implement the former comes about through a desire to wrest power from a strong machinists’ union, as well as the postwar ideology of total factory automation.

If surplus-value is central to the manifold notion of alienation introduced above, Noble believes that, in the production process, the improvement imperative is generally subordinate (most evident in times of

<sup>5</sup> Although Marx makes reference to the terms formal and real subsumption in what we commonly understand as *Capital* proper (1990:645) and in the *Grundrisse* notebooks (1973:499 and 690-712), their exposition comes in “Results” (Marx 1990b:949-1084), unpublished in English until the 1970s.

<sup>6</sup> On this point see Ellen Meiksins Wood, *The Origin of Capitalism: A Longer View*. London: Verso 2002:95-121.

<sup>7</sup> An anonymous reviewer of this article suggested this reference.

<sup>8</sup> As Noble points out, the novelist Kurt Vonnegut worked for GE during the early years of his writing career. Vonnegut’s book *Player Piano* was at least in part inspired by his time at GE, during the period. Noble 2011:166. See also Vonnegut, Kurt. *Player Piano*. New York: Avon, 1970.

crisis) to the reproduction of class domination. Any amount of worker control in productive methods is in other words contingent upon its simultaneous cooperation with management.<sup>9</sup> It requires the acceptance of alienated activity, a condition that is not, of course, absolute. “When the goals of profit-making and efficient production fail to coincide with the requirements of continued domination, capital will resort to more ancient means: legal, political, and, if need be, military” (321). While this is no doubt accurate in exceptional circumstances, the insight cannot be untethered from the generalized profit-centered motive manifest in the labour process. Class domination is intimately tied to production, and the production process requires reproducible and expanding profit for its success. It contains imperatives irreducible to direct control over the labour process, as more flexible forms of production in the post-Fordist era have demonstrated.<sup>10</sup>

The production process, guided by capital, is malleable enough to allow for differential paths within the general need to reproduce class domination and expand profit. If the content of alienation is the result of class conflict, basic imperatives and tendencies of capital also make their way into lines of technological development. Content refers here to the concrete reality of alienation, its materiality determined by class struggle and class peace. This includes the loss of control for workers inherent in the objectifications and estrangements of really-subsumed labour. Control, in other words, is situated within the valorization process, constituted in part by alienated activity and determined through an active class relation.

The content of alienation can therefore be understood as cycling, with its moments mutually reflected in one another. The lived experience of alienated activity is determined, in part, by the political reality of workers. The autonomist-Marxist concept of a cycle of struggles will help to frame the fluidity of

alienation and move forward my argument. Nick Dyer-Witheford explains: “In periodic restructurings capitalism constantly increases in technological intensity and the scale and scope of its social organization, but these shifts answer to and are answered by changes in the composition of labor that create new points and agents of antagonism” (2001:160). Drawn from the history of twentieth-century class struggle, Silvia Federici and Mario Montano’s “Theses on the Mass Worker and Social Capital” (1972) lays out the general methodology for capitalist transformation through the cycle of struggles concept. They identify the transformation of labour-power from “passive, fragmented receptacle of factory exploitation” to “international political actor, the political working class,” formed during the global struggles of the first quarter of the century (6). The international class composition<sup>11</sup> of this movement would see vanguards begin the fight, based in crystallized divisions within the working class that separated the forefront of struggle from the masses. In the 1930s, Taylorism would decompose the mass-vanguard dichotomy through which this iteration of the international working class was composed. Out of the destruction of hard-won skill, the “mass worker” emerges. From organization around the Taylorist factory, a new political manifestation of the working class. In “Archaeology and Project: The Mass Worker and the Social Worker,” Antonio Negri (1988) adds the latter subject to this history of transformation. The subjective character of the mass worker grasped the power they held, but the displacement of trade unionism from the vanguard of struggle in the 1960s and 70s had taught workers that the relationship between capital and labour-power had been transformed. The mass worker, with its origins in the factory, was recomposed as the socialized worker, exposed to multiple capitalist antagonisms outside factory walls. Negri’s analysis is, in this way, a genealogy of the revolutionary subject “from the working class, i.e. that working class massified in direct production in the factory, to social labour-power, representing the potentiality of

<sup>9</sup> Erik Olin Wright champions class compromise with capital as a desirable outcome of contemporary class struggle, what he calls a “*positive class compromise within capitalism*” (2002:22-44).

<sup>10</sup> I am referring to the expanded capacity of proletarians to produce surplus value outside of what was once more simply conceived as the working day. This may now occur through the commodification of labour power outside of the wage relation and direct command of capital.

<sup>11</sup> Class composition refers to political relations within the proletariat based on the level of development of what Marx call the organic composition of capital, or the ratio of machinery to human labour in the production process. See Dyer-Witheford (2010: 498-499) and Pasquini (2014:189).

a new working class, now extended throughout the entire span of production and reproduction” (205).

As Dyer-Witheford’s summation suggests, technology remains a reactive force in the cycle of struggles concept. Technological development is still a product of the working-class, as capital manoeuvres to decompose the associations through which working-class power is articulated. The direction and codification of technological development comes from capital and is motivated by control, as shown by Noble. This movement is condensed by Marx in the oft-quoted section of *Capital*: “It would be possible to write a whole history of the inventions made since 1830 for the sole purpose of providing capital with weapons against working-class revolt” (Marx 1990:563). In “Lenin in England” (1979), Mario Tronti would generalize this discovery. He argued that capitalist development is commonly subordinate to working-class struggle and organization. Innovation is directed toward the replication of ruling-class domination, just as Taylorism fractured working-class power.

In the cycles of struggle approach, as in autonomist thought more generally, class conflict directs changes to the forces of production. This is a central point in the concept of alienation as I develop it here: struggles and their results form the content of alienation. A cycles of alienation approach, in the first place, guards against the tendency to ossify the content of alienated activity in criticism by fixed, fast-frozen categories. The activity of proletarians, whether on networks composed by capital or otherwise, is generally irreducible to foreclosed political action – as mere reproductions of capital. Moreover, the technical basis of contemporary capital is such that engagement with identifiably-digital technology requires no comparable collaboration to that identified by Noble. If it was indeed the case that class struggle from below imprinted itself on technological development (Federici and Montano 1972 and Noble 2011) as capital reacted against workers, proactive transformations are now more readily possible. The diffusion of productive technologies and technical capacities across populations indeed suggests multiple points for the reconfiguration of technology toward non or anti-capitalist outcomes.

## Co-Development of Class and Technology for the Accumulation of Capital

If, in *Forces of Production*, alienation is materialized in technical development through the mediation of class conflict, this insight becomes amplified and extended in studies of digital communication. The co-development of subject and object often appears, within Marxian IS, as the domination of the latter by the former (Greaves 2015). Although more generally meant to denote the interruption of working-class political activity through ideology and its manifestations in technology (195–204), foreclosure theory presents a particular form of design critique, in which capital commands proletarian activity in digital communication.

As the cycles of alienation concept means to demonstrate, the content of alienation and the constitution of agency in online activity require consideration in light of historical change. This process involves reassessment of the conditions and analytic purchase of the moments of alienation in their present forms. In an analysis of Facebook, Christian Fuchs and Sebastian Sevignani (2013) discover updated forms of estrangement. Against hegemonic claims that praise user participation on digital networks, Fuchs and Sevignani argue that digital media not based in communist ownership transform users into labourers; non-communist sites render communicative and cooperative activity for the accumulation of surplus value. For the pair, there’s been something of a shift in alienated activity. They depart from Marx’s use of species-being, (which they understand as sensuous activity) and from the fourth form of alienation, alienation from one another. The moments that Fuchs and Sevignani identify are instead “alienation from oneself, the alienation from the objects of labour (instruments and objects of labour) and the alienation from the created products” (257). As with Marx’s work in the “1844 Manuscripts”, the terms of alienation are constituted historically, although this is implicit, rather than developed.

The emergence of Facebook as a dominant medium in contemporary life is based in qualitative changes in the process of capital accumulation, as capital adapted to the crises of Fordism, what David Harvey calls flexible accumulation (1990:141–172).

Taking Harvey at a very general level, we can say that the hegemony of Fordist mass-industrial society in the United States involved the combination of Taylorist productive methods and a Keynesian labour/social contract. In the 1960s and 1970s capital encounters a number of barriers to surplus-value accumulation that it cannot overcome in its Fordist form – working class, proletarian and anti-capitalist social power; excess capacity; high fixed-capital investment; and falling consumer demand. Subsequent economic restructuring emphasized flexibility in production against the rigidities Fordist life.

The dissolution of Fordism was also a decomposition of proletarian dissent that grew from its contradictions. The accumulation of struggles for liberation, Hardt and Negri write, “was the motor of crisis, and they determined the terms and nature of capitalist restructuring” (2000:239). Eliminating the power of these attackers was inherent in the post-Fordist project. Hardt and Negri (273–274) argue that the flexibilities associated with life and labour today are a corrupted form of the rejection by proletarian youths of rigid, disciplinary Fordist society and its labour contract. The direct forms of refusal captured in the social experiments of the 60s and 70s and the valuation of creativity, communication and mobility are turned against those posing demands. Materialized into a mode of accumulation that valorizes communication and knowledge, capital embraces flexible forms of labour organization. Importantly for the purposes of this paper, the content of alienation, like that of labour process, transforms as the cycles progress.

Yet, some continuities remain. In the theory of technological mediation developed by Fuchs and Sevignani one can see parallels to the really subsumed labour of industrial workers. Marx deals extensively with the objectification of labour in the chapter “Machinery and Large-Scale Industry.” From his study of Manchester factories and the work of technologists like Andrew Ure and Charles Babbage (Roth 2010:1234), Marx argues that factory labour is rendered mechanical as it develops; the worker is incorporated into the vast factory apparatus. “The machine does not free the worker from work, but rather deprives the work itself of all content” (Marx

1990:548). Similarly, Fuchs and Sevignani argue that our communicative activity and cooperation on Facebook function to better position users for capital. Activity is instrumentalized on the platform, directed toward the accumulation of data that will inform targeted advertisements. In this form of unwaged labour, users are alienated from the algorithmic processes and platform decisions that underwrite the accumulation of value. Users therefore lack the means to collectively change the medium. They “do not have the decision power to influence Facebook’s rules and design, such as the content of the terms of use and the privacy policy, the privacy settings, the use of advertisements, which user data is sold for advertising purposes, the standard settings (e.g. opt-in or opt-out of targeted ads), required registration data, the placement of commercial and non-commercial content on the screen, etc” (Fuchs and Sevignani 2013:258).

Mark Andrejevic (2011) has identified additional concrete detail in the alienated activity of content creators. Like Marx in the “1844 Manuscripts,” Andrejevic begins with the estrangement of the worker from the products of their labour. In what Andrejevic calls the online economy, this is the estrangement of user-generated content. He argues that the alienation of users from their data is a necessary condition of online exploitation. Data-driven marketing is able to flourish in the space created by this condition. In particular, an industry of predictive market analytics emerges to facilitate the valorization of user activity. Users are in effect also alienated from the tools of production in this mode. The activity of exploited users is estranged in the act of value creation, as the capitalist-codified technology directs user activity. “The goal of predictive analytics,” for example “is, in a sense, both pre-emptive and productive, predictive and manipulative: to manage risks before they emerge or become serious while at the same time maximizing sales. The goal, in other words, is to integrate possible futures into present behaviour and thereby to manage the future” (Andrejevic 2011:281). Additional forms of technological mediation are introduced into the valorization process toward the intensification of surplus-value. The creation of content online is turned back upon users, as activity online is mobilized by capital to narrowly

delimit possible futures. Data is captured, alienated and returned as deformed passages in online activity, tailored toward commodity consumption. Alienated activity is deepened by intensifying technological codification by capital.

Alienated and compelled activity appear here as the basis of exploitation. The manifestation of capitalist imperatives in technology renders online activity for its exchange value. This rendering is what the philosopher of technology Andrew Feenberg (1999:87–9) identifies as ‘technical codes,’ or the social values and economic tendencies manifest within technologies and technical systems. For Feenberg, technical codes situate objects by the socially-determined values to which they’re attached. With capital, exchange value is the appearance value itself. With technical change in capitalist society, in the factory or online, the accumulation surplus value is the structuring technical code.

While the accumulation of surplus value is primary in the creation of capitalist technologies for surplus value accumulation, it is by no means necessarily the determining moment. We can identify the mediating presence of socially-determined biases present in technology that exceed the economic relationship. This is apparent in the ideologies of capitalist command and total automation from Noble’s analysis. With digital technology, the estrangement of control reappears as the alienated processes through which futures are constructed. Combining Feenberg and Andrejevic, the management of user horizons by predictive analytics is as a political form of alienation in its second moment.

The alienated basis of surplus-value accumulation is at once both expansive and personal in digital communication, constituted by universal technical mediation in the most unremarkable activities we engage online. Content producers are said to be in a poor position to resist their alienated activity. The interactions of users present a mystified impression of genuine participation. Fuchs, for example, questions the participatory character of online activity, arguing that digital communication promotes the accumulation of capital, while users remain estranged from decisions concerning the operating of sites (2013). While this is patently correct,

such an understanding leaves us with impoverished conceptions of alienation, alienated activity and technological change, underscored by any number of movements that push back against the intrusions of digital capital. Such protests are often characterized as trivial or aesthetic, and no doubt these types are common – concern with changes to Facebook users’ ‘timelines’ led to a number of protests immanent to the site, including a few hundred thousand account deletions. We should not, of course, confuse radical or transcendent demands with requests that capital can easily allow, nor with so-called ‘clicktivism.’ Such protests ultimately affirm the power of capital online and, taken to the extreme, could be considered a form of collaboration. However, by ignoring user protests we displace their motive force in technical development. We run the risk of ossifying the relations of production in technological development, treating the power imbalance between capital and proletarians as universally determining.

The recognition that user inputs can influence development in a proactive way remains an important one. Returning to Feenberg, we can say that the failure to transform technology lies neither with the technology itself nor with capital, but with the left and its failure to better incorporate solidaristic and communistic technical imperatives in its demands and movements. Were the social values inherent in technological development solidaristic in origin, non-alienated technological forms could emerge. These social values would not imply a repudiation of new technology but embrace non-capitalist technical codes (Dyer-Witheford 1999:214–215 and Feenberg 1999:222–225). It is, in short, a failure of organization, despite attempts at incorporating such values in digital communication, which in turn suggests the weakness of the left generally. In absence of large-scale movements to recode technological futures, Fuchs and Sevignani (2013:268; Fuchs 2011:51; Fuchs 2013:213 and 221), look toward communist digital architecture to facilitate the development of better technology. In doing so, however, they ignore the potential of user activity to recodify capitalist-encoding.

Drawing from autonomist-feminist work on domestic labour in the 1970s and from the political

economy of social networks, Laurel Ptak's Wages for Facebook campaign has drawn attention to the social relationships through which Facebook functions and those which, in turn, it supports. The campaign identifies the unique position users, as direct producers, hold in the online economy and therefore their ability to disrupt its normal functioning. Ptak situates the recognition of such power within a greater praxis. Struggle against the valorization of users' free labour may emerge *a priori* in the development of class solidarities (a perspective which highlights users' class activities rather than architectural finality) and subsequent technological recodification. Ptak, in this way, points to possible disalienating activities through the crucible of class conflict. Exploitative in the Marxian sense, the expansion of free labour in the online economy generates its own contradictions, especially among a technologically-literate proletariat.<sup>12</sup>

### Co-Development and Liberation: Estranged-Gravediggers Online

Autonomist-Marxist theories within IS find more political potential in online activity than those of the foreclosurists. The knowledge and skill of users tends to occupy a central position and are likewise important to contemporary moments of alienation. Unlike the reactive form of technological development in Fordist capitalism, the highly technologized social field of the twenty-first century is readily available for appropriation because there appears today a simultaneous levelling of knowledge among proletarians, matched with an investment in skill. This social investment is tethered to a "qualitative leap forward in the technological organization of capital" (Hardt and Negri 2000:272). The generalized knowledge/skill of users is however impeded or deformed by capital's desire for accumulation. Radical aspirations

are taken down unhelpful paths; commodification denies proletarian self-determination, as we proletarians are estranged from our autonomous becoming.

The socialized worker of Negri, identified through the cycles of struggle genealogy, is similar to the subject of contemporary autonomist-Marxist IS, or perhaps more correctly is its predecessor or emergent form. Hardt and Negri's *Empire* trilogy identifies the heterogeneous multitude as the political subject for capitalist transformation, the progeny of those that opposed the strictures of Fordist capitalism. "Empire creates a greater potential for revolution than did the modern regimes of power because it presents us, alongside the machine of command, with an alternative: the set of all the exploited and the subjugated, a multitude that is directly opposed to Empire" (2000:393). The multitude, as the name suggests, is composed of differentially exploited groups, "singular and determinate bodies that seek relation" (30). Although there is a recognition of uneven circumstances, subjects labour under certain common conditions, what Hardt and Negri regard as the hegemonic dominance of 'immaterial labour.' The normative quality of immaterial labour includes increased emphasis on communication and intellectual forms of production. In the multitude, immaterial labour operates as two dominant principles or forms. "The first form refers to labor that is primarily intellectual or linguistic, such as problem solving, symbolic and analytical tasks, and linguistic expressions. This kind of immaterial labor produces ideas, symbols, codes, texts, linguistic figures, images, and other such products. We call the other principle form of immaterial labor 'affective labor,'" which "is labor that produces or manipulates affects such as a feeling of ease, well-being, satisfaction, excitement, or passion. One can recognize affective labor, for example, in the work of legal assistants, flight attendants, and fast food workers (service with a smile)" (Hardt and Negri 2004:108). Given the normative tendencies of immaterial labour, the multitude is defined by the inclusion of "all those whose labour is exploited by capital ... and not a new industrial working class" (Hardt and Negri 2000:402).

Crucially, the multitude is capable of appropriating the tools of Empire for its radical desires. The

12 There is at the moment a robust debate concerning whether or not online activity produces surplus value, to which Fuchs and others have contributed. See for example Fuchs (2010 and 2013), Fuchs and Sevignani (2013). Against Fuchs, Arvidsson and Colleoni (2012) argue that the Marxist labour theory of value is difficult to apply to value creation in 'informational capitalism.' Fuchs replies that they misunderstand value (2012a). Jin and Feenberg (2015) argue that Fuchs reduces users to their economic function. Robinson (2015) criticizes Arvidsson and Colleoni as well as Fuchs, though he retains a Marxian understanding. The sense in which I use exploitation is most closely aligned with Fuchs and his use of Smythe, though I remain convinced that Fuchs's particular foreclosure theory has serious limitations, as I've argued.

“invention power,” or the power to transform technology and social relations also found in socialized workers (Negri 2005), is evident in its constitution. “The scientific, affective, and linguistic forces of the multitude aggressively transform the conditions of social production” (Hardt and Negri 2000:366). The second form of alienation is therefore qualitatively different for the postmodern multitude than for those exposed to either advanced industrial technology or the digital networks constructed by the foreclosurists. Technologies created for the accumulation of surplus value online do not require the separation of proletarians from appropriative skill. In *Empire*, alienation spreads through networks organized by capital. It appears as a loss or lack of potentiality for the multitude in their experience of life processes (23). It is a degraded future under the command of capital that is returned to the multitude. Communication and cooperation are reformatted toward the production of value, as internet communication becomes the site of a very particular form of proletarianization. Alienation is here an affective condition. “When our ideas and our affects, or emotions, are put to work, for instance, and when they thus become subject in a new way to the command of the boss, we often experience new and intense forms of violation or alienation. Furthermore, the contractual and material conditions of immaterial labor that tend to spread to the entire labour market are making the position of labor in general more precarious” (65–66).<sup>13</sup> Alienated activity, deeply affective or emotional, is treated as an infection that spreads through immaterial labour. Something similar is suggested by the fourth form of alienation and Marx’s theory of the commodity fetish (1990:163–177). However, the co-development of user and technology is not of itself alienating, at least not in the way that Marx describes the labour process in 1844.

As a consequence of this division of labour on the one hand and the accumulation of capitals on the other, the worker becomes more and more uniformly dependent of labour, and on a particular, very one-sided and machine-like type of labour.

Just as he is depressed, therefore, both intellectually and physically to the level of a machine, and from being a man becomes an abstract activity and a stomach, so he also becomes more and more dependent on every fluctuation in the market price, in the investment of capital and in the whims of the wealthy. [Marx 1992:285]

The exceptionally communicative and interactive form of production, enabled by multiplication of connections available through the online economy means that endogenous methods of control expand outward exponentially. Outside of labour directly mediated by digital technology, alienation in Empire involves the manipulation of affects, as in service work and traditionally feminized forms of waged and unwaged labour.

Empire is said to alienate *through* communicative networks. As in the third and fourth forms of alienation, the multitude is alienated from control over the direction of its existence and from one another. Likewise, the separation of users from that which they produce would seem to correspond to Marx’s initial moment of alienation. Despite differences between texts in Hardt and Negri’s development of immaterial labour, class relations dictate the form of command that constitutes alienated activity in both *Empire* and *Multitude*. This insight fails, however, to be extended to technology itself. The pair thus critique the limitations of alienation as it applied to industrial production: “Alienation was always a poor concept for understanding the exploitation of factory workers” (Hardt and Negri 2004:111). If Marx intends alienation to include the historical separation of workers from control over the industrial labour process, Hardt and Negri develop the incompatible position that capitalist social relations under conditions of Empire can be overturned through *hybridizations* between individuals and digital technology (Hardt and Negri 2000:367). Guiding Hardt and Negri’s view of hybridization is the implied belief that digital communications technology is necessarily available for the multitude to realize their radical desires. Capitalist technological codification of productive technologies appears rather unproblematic, as distinctions between (the thoroughly modern conception of) subject and object

<sup>13</sup> An expanded elaboration of the immaterial labour hypothesis is outside the purview of this essay. As Camfield (2007) notes, in any event, its terms change from 2000’s *Empire* to 2004’s *Multitude*.

are dissolved in one hybridized unit. The invention power of the multitude supersedes undesirable materializations of technical code. The estrangement of user from technology is reconciled. Technologies productive of surplus value in the postmodern era are available for appropriation by the multitude, through a generalization of knowledge, what Marx in the *Grundrisse* (1973:706) calls ‘the general intellect.’ Carlo Vercellone comes to a similar conclusion, when he identifies the “increasingly collective nature of technical progress” (2007:31). The obverse side of this potential is that collective, communicative and affective aspects of production – held within the greater part of the multitude – are the raw materials appropriated by capital.

Here, class struggle between the multitude and Empire does not appear to materialize in productive technologies. The second form of alienation is displaced in the concept’s re-evaluation, suggesting a near universal ability to appropriate the tools of production toward the political goals of proletarians. While an optimistic assessment, the implied neutral codification of technology dislocates the potential, inherent in critical theories of technology, to identify not only points of necessary recodification but contradictions and antagonisms inherent in the digital technologies of capital.

In a critical theory of technology, political codes of both technology and alienation would appear related through struggle between capital and workers, both waged and unwaged. Struggle over the conditions of use/labour and the content of technology creates new lines of development that concretize and codify technology by socialist alternatives. Such a position would affirm the alienated content of technology and labour process, while situating this same content within a dialectic of class conflict. Proletarian-technology combinations may then appear inconsistent and antagonistic. While capitalist command may render certain technological usage apolitical, as Jodi Dean argues,<sup>14</sup> struggle

would appear as a re-conditioning device, both for proletarians and their tools, in which new lines of technological development and subjectivity appear as the result of conflictual and contradictory imperatives and actions.

Within the autonomist tradition, Nick Dyer-Witheford has retained criticality while simultaneously highlighting the inventive power of proletarians. “If the capital relation is to its very core one of conflict and contradiction, with managerial control being constantly challenged by countermovements to which it must respond, then this conflictual logic may enter into the very creation,” and, we can add, development, “of technologies” (Dyer-Witheford 1999:71–2). Technologies are sites of struggle in this account, instead of mere passageways through which struggle occurs. In “Digital Labour, Species-Becoming and the Global Worker” (2010), Dyer-Witheford focuses his attention on the relatively neglected fourth form of alienation, species-being (485). Like Hardt and Negri, Dyer-Witheford argues that proletarians are separated from control over our activity by capital. The historical plasticity of humanity, our ability to adapt and change, which he calls species-*becoming*, is directed from without.

Marx understands the unfolding of species-being as determined by class and conflict. Alienation, the central problematic of the Manuscripts, is not an issue of estrangement from a normative, natural condition, but rather of who, or what, controls collective self-transformation. It is the concentration of this control in a sub-section of the species, a clade or class of the species—who then acts as gods (albeit possibly incompetent gods) – to direct the trajectory of the rest. [487]

Emergent forms of commodification block autonomous moments of species-becoming, subordinating species-life to capital: “micro-systems of control assembled from digital, genetic and mechanical components which approach a life of their own” (494). This estrangement, however, is also manifest in technological development and its control.

The identification of capital in the technical – a devil in the details – is a key point of departure for Dyer-Witheford within autonomist IS. Although

<sup>14</sup> This is a central aspect of Dean’s communicative capitalism hypothesis. Similar to Fuchs, Dean argues that digital communication operates through a ‘fantasy of participation’. “Under communicative capitalism,” Dean writes “communication functions fetishistically as the disavowal of a more fundamental political disempowerment or castration” (2009:33).

Dyer-Witheford ultimately affirms the dissolution of the subject-object distinction, replaced by ‘cyborgs,’ ‘flesh machines,’ or the ‘cyber-carnal,’ the process of dissolution takes place on the combined and uneven terrain of capital. Instead of proliferating combinations, however, Dyer-Witheford endorses the establishment of non-capitalist criteria by which to judge and transform technology, “tantamount to a call for the reappropriation of the means of production” by proletarians within a framework of collective planning. (Dyer-Witheford 1999:215–216). The technical knowledge and capacities of proletarians could then be turned against capital through communist recodification of the technical. This would surpass the purely reactive form of technological development, assigned by the original cycle of struggles approach, to include a critical inventive-power in proletarians.

A dialectic of class struggle is equipped to identify moments of alienated technical code for recodification (Feenberg 1991, 1999), and Dyer-Witheford’s emphasis on the inventive-power of proletarians suggests paths for the communist recodification of technology to travel. As I’ve suggested, alienation generally, and alienation from control over technological development more specifically, provide a useful lens through which to view technical development. The other side of this is the discovery of disalienating moments that could help generate criteria for recodification, as the problem of capitalist codification cannot be resolved at the abstract level.

Foreclosure theory has attempted a dialectic similar to what I’m suggesting. Unlike a model of active class struggle, however, the dominant power in production is seen to determine proletarian political claims (Fuchs 2013; Fuchs and Sevignani 2013; Dean 2005, 2012). Marxian IS is indeed no stranger to the claim that capital and the state reappropriate political and emancipatory tendencies. Rao et al. (2015) have recently identified corporate appropriation of the open-source movement as a response to the struggles of digital proletarians. The skill and knowledge of proletarians, identified by the autonomists, here proceeds under terms appropriate for capital. As with the demands of those that rebelled against the epochal conformities of Fordism, the terms of social or technological transformation reappear in the service of

capital. Likewise, increased sociality and connections have been transformed into an apparatus of capitalist (Andrejevic 2011) and state surveillance.

If capital finds ways to reinscribe alienation in emancipatory activity, there remain contradictions in capitalist accumulation online that allow for moments of disalienating practice. The emphasis capital places on computer-science requires a simultaneous development of skill in digital workers. Alienated from our direction as a species, such skill presents possibilities for disalienating technological practices. Kate Milberry notes that democratically-motivated hackers introduce solidaristic imperatives into lines of technological change. “Tech activists recode software in a way that anticipates the progressive social change its authors pursue; in this way, their theory of social change begins on practice” (2012:110). Johan Soderberg identifies affinities between theories of the Second International and the utopic mythology mobilized by hacker groups, in which the recodification of technology is tied to an emancipatory, if deterministic, view of new technology (2013). Gabriella Coleman recognizes a variety of new technological forms that emerged from Indymedia coders, as they responded to different needs and discourses within a group culture of collectivity (2004). Technology therein is developed to support a politics of “globalization from below.”

As the cycles of alienation concept suggests, the active transformation of alienated conditions in the current cycle is multidirectional. Its forms are not determined by an ossified productive relation – not as the accumulation of value nor as reactive forces against proletarian organization, as sometimes conceived. Rather, the development of digital technology is an active relationship with reference to the radical proletarian body invested with technical competency. Key in this, however, is a general recognition of the role critical, dialectical conceptions of technology need to play in identifying contradictions in contemporary capitalism and points for technological recodification. This is especially so if we are to heed Dyer-Witheford’s suggestion (1999:215–216), drawn from Feenberg (1991; see also 1999:222–225) and others, to create new criteria for lines of technological development.

## Conclusion

Contemporary theories of alienation within Marxian IS are marked by polarization. This is especially so with theories of Marx's second moment of alienation – estrangement in the process of producing. Fuchs and Sevignani argue that capitalist digital media provides almost none of the liberating potential identified by its proponents, as its functioning still rests upon a capitalist base. Instead, the alienation of digital labour is similar to the foundational estrangement of capitalism – the separation workers from control over their labour-power – as the pair recall Marx's dialectical criticism of factory labour from volume one of *Capital*. Fuchs and Sevignani, however, fail to address the knowledge of users as a basis for disalienating technological change. User activity is instead mystified, gaining only the appearance of genuine cooperation, when in fact the ever expanding connections only provide value for site owners. For Andrejevic, the foundational estrangement of the online economy – estrangement from that which we produce – allows space for technological codification by capital to deform future activities on the internet. The integration of "possible futures into present behaviour" (Andrejevic 2011:281), is a corruption of user control, and an example of ideology materialized in the technological mediation of class relations.

Dyer-Witheford and Hardt and Negri find commonality here with Andrejevic's analysis of alienated activity. The estrangement of control, identified by each, conforms to a moment of Marx's alienation. However, Hardt and Negri's failure to identify alienated technical codes in the capitalist form of digital technology presents a significant discontinuity with Marx. This is fully realized in Hardt and Negri's hybridized figure, whose creative power for technological change meets no equivalent estrangement by capital. Although Dyer-Witheford retains hybridity, his critical conception requires reflexivity in human-technological combinations. This may be a case of affirming the subject-object dichotomy, while ultimately attempting to dissolve it with the cyborg, but the slippage smuggles in the critical conceptions of technology necessary for anti-capitalist and non-capitalist recodification – for disalienating technical practices.

I developed the cycles of alienation approach to highlight activities that inform technological change. In this conception, technology emerges from social and economic struggles. The concrete technological outcome is, however, by no means clear. In technology, counter-hegemonic groups discover a plurality of opportunities, while capital finds the ability to extract surplus value or extend its command. If the paper at hand is an attempt at recovering Marx's alienation in the context of political struggle over digital technology, with any luck the concept has wider applicability to concrete circumstances.

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