**Cyber-Proletariat: Digital Labour in the Global Vortex**

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Talk to be delivered at Kyiv Polytechnic, October 29 2015

(Numbers in text indicate slides in accompanying presentation**)**

**1** I thank Pavlo Kutuevand Volodymyr Ischenko for inviting me to Kyiv Polytechnic. My talk, *Cyber-Proletariat: Global Labour in the Digital Vortex,* is based on a book of the same name*.* I should set the scene by explaining where this project came from*.* One can’t be in Kyiv today without reflecting on the Maidan uprising. The Maidan was, however, part of a much wider cycle or arc of tumults that from 2008 to 2014 ran from China to Egypt, Istanbul to Rio: I was involved in the North American Occupy Wall Street, a movement that, like others in this world wide wave of protests was in part organized via social media and cell-phone networks, so that, afterwards, there was much discussion of so-called Facebook revolutions, their reality and desirability—or unreality and undesirability.

When I started *Cyber-Proletariat*, I intended to write about this debate over Facebook Revolutions—which is indeed an important one. But as I researched, I realized behind this discussion, about the tactical uses of digital media in protests, lay a larger, strategic question-that of how digital technologies shaped the conditions of work and worklessness that exploded in squares and streets around the planet. That’s the question my talk, takes up: how has the cybernetic revolution contributed to changing the class composition of contemporary capital. I am, however, no expert in the political economy of Ukraine, or of Eastern Europe or Russia. I therefore put forward some hypotheses about cybernetic capitalism to be tested against the reality of contemporary Ukraine.

**2. What then, is a vortex?** A vortex is a whirlwind, a tornado**.** Capital is a vortical process, an accelerating, tornado-like circuit of self-expanding value. 3 In production, the funnel of the vortex, surplus value is siphoned into commodities then circulated with increasing rotational speed and scope through the world market, while in the turbulence of financialization, money seeks a direct leap to money amplified. The capitalist vortex is machinic. Driven by competition, conflicts with other systems, and, primarily by an imperative to control and increase the productivity of labour, capital employs ever more machines relative to the labour power it activates. This machinic intensification proceeds in bursts, abrupt condensations, 4 5 6: the cotton jenny, steam engine, self-acting mule, railway, coal-burning ship and telegraph, semi-automatic assembly line. The latest of these machinic injections was the cybernetic revolution 7, precipitated by World – and Cold-Wars, theorized by 8 Norbert Weiner, John von Neumann, and Claude Shannon and others whose work laid the foundation for generations of computers, networks, robots and swarms.

Developed within the US “iron triangle” of military **9**, corporate and academic interests, cybernetic technologies rapidly became the basis of a commercial computer industry. Driven by the the two great “laws” of digital production, Moore’s, **10** which specifies that the computer power available at a given price doubles approximately every eighteen months, and Metcalfe’s, which declares that the value of a network increases as the square of its nodes, cybernetic development follows a runaway trajectory **11**.

Its new technologies were also, almost from their inception, but especially from the 1970s on deployed on advanced capital’s home front, **12** to breakdown an industrial working class whose strike power drove wage and welfare gains. This involved:

**13** a) Automating factories-- the classic mechanical liquidation of labour pursued at a higher level by self guiding tools.

 **14**b) Relocating industrial production via supply chains dependent on telecommunications infrastructures, modularized interfaces, bar codes and RFIDs. This is the logistical aspect of cybernetic, which rather than replacing labour, expands it globally--but at the lowest wage, and with maximum disposability.

**15** c) Financialization., developing instruments such as derivatives and futures initially to defensively hedge foreign investments, which then morph into high risk speculative activities dependent on computer modeling and high-speed trading.

This trifecta of automation, relocation and financialization is what I term the digital vortex **16**. Over some forty years, it decomposed the factory bases of the classic working class, the mainly male, eventually relatively well-waged mass worker of the planetary north-west **17**.With this, an entire culture of class struggle all but melted into air.

What emerged was the technical basis of a new class composition--that of a global proletariat, **18** of perhaps more properly a set of global proletariats sliced, diced and dispersed along the supply chains that give capital a worldwide supply of labour even as it its need for labour was diminished by automation. From 1980 to 2010 capital’s planetary “labour force” expanded from 1.2 billion to 3 billion, not just by population growth, but by deepening market penetration of the planet: the end of the socialist bloc alone doubled workers available.

Capitalism has always drawn on world-wide labors: the slave trade, super-exploited colonial workers, and peasantry of the periphery. But today this labour is the systematically organized in systems of production and circulation of a scope, flexibility and granularity that would have been impossible without cybernetic technologies.

This proletariat is feminized, racialized, migrant, precarious, and in a very contingent relation to the wage. I use proletariat, rather than working class, to acknowledge the fact that today, as the weak joke has it, capitalism isn’t working; that a large proportion of the working class is workless. Now, as in Marx’s era, proletariat denotes the incessant phasing in and out of work and workless-ness, the precarity, of the class that lives by labour.

 This proletariat is segmented, stacked and stepped across a hierarchy of border segregated wage zones from Bangladesh to Baltimore. It is also networked, **19** connected, though with varying intensity, to capital, to commodities, and to itself by over 2billion internet connections and 7 billion mobile phones. In that sense, it is a cyber-proletariat.Within this process of proletarianization I identify 7 points **20**.

i) **A collapsing global peasantry**. **21** Around the world the subsistence farming that for millennia supported most of the world’s people has for decades been eroding under a variety of pressures, amongst them the automated harvesters and genetically modified seeds of high tech, monocultural agribusiness plugged in to the supply chains of the global food industry. The consequence is world-historical flight from the land, **22** a massive new round of the primitive accumulation that provided capital’s early proletariat.More and more people depend on commodity exchange; only some are actually able to sell the one commodity they own—their labour power—for a wage.More than half global labour is not waged—‘vulnerably employed’ unpaid family workers and own-account informal workers. Indentured servitude, bonded labour, outright slavery and pitiful piece work abounds, not least at the base of cybernetic industries themselves—be it as **23** Congo coltan child miners, or e-waste pickers in Ghana **24** or India **25**.

ii) Some flood in to new factory zones. **26** Contrary to de-industrialization claims, the share of industrial labour in global employment has been relatively steady over the last 4 decades. However, industrial work *has* been trans-nationally reorganized, declining in old industrial countries as it moves, first to special export zones in Central America, Eastern Europe and Asia, then in China. This generates new industrial proletariats formations that not only stand at the foot of cybernetic supply chains, but make cybernetic machines **27**. Their work conditions are indexed by disasters such as the Rani Plaza collapse **28**, or the anti-suicide nets at Foxconn **29**.

iii) If agricultural work is declining and industrial work steady, **30** service work is growing. Service is a notoriously vague category, naming labour mostly in the spheres of circulation (retail, advertizing and promotion, sales), and social reproduction (domestic work, health care, education). **31** The growth of service is strongly related to what is termed (misleadingly) a ‘feminization of work’, actually a female double shift of work, both waged and unwaged, in and outside the home. Some service work such as haircuts or hospitality work is ‘in person’ much is now intensely mediated by information technologies. This Includes routinized information work performed by a “white collar”-but brown or yellow skinned --proletariat” in call centres, but also various forms of “shadow work, from gold farming for computer games **32** to virtual sex work **33**, as well as attempts to control such outlaw activity, such as commercial content moderation which filters what you see on social media**34**.

Informal work, new factory labour and cyber-service work are each segments of classic proletarianization, set in a cybernetic matrix; workers obliged to sell labour power with no control over what the produce, how they produce it, in ruthless competition for employment, inhabiting despoiled ecologies--a long stretch from the empowering knowledge work always promised to come with cybernetics.

iv) Such work does, to a degree exist, in the realm of **digital professionals 35--** a new layer intermediate strata between labour and capital composed of those whodesign new technologies, or supervise, train and manage and educate those who work with technologies.— in game studios, medical and military apparatus **36**, the great information corporations **37**, the finance sector **38**. The ILO says that over the last decade “shares of “professionals and technicians” in employment have increased in most economies, in Europe accounting for more than a quarter of the employed, in developing countries round 15 per cent. ’ This is where we find are the ‘good jobs’, well paid, with some autonomy at work-- broadly a de-proletarianizing tendency. However, contradictory forces play on these jobs. Increasingly these professional jobs too are subject to the outsourcing and automation which they set in motion **37**. This precarity is enhanced by the supply of ‘free labour.’

v) **Social media free labour**.[[1]](#endnote-1) **39**It is well known that Web 2.0 search-engine and social-media depend on free labour user-generated content and search results. The rise of companies such as Google, Facebook and Twitter produces small increase in technical work, and a huge mobilization of free ‘prosumer’ content provision **40**

v) Similar increases in precarity result from the growth of the **edu-factory**. **41**The techno-scientific demands of cybernetic capital are reflected in the global growth in the education sector. “Since 2000, the global participation rate in higher education has grown from 19 to 32 percent; in Europe and North America, 70 percent. “Edu-factory” links a vocational mission, corporate management models, STEM emphasis, tight linkages to the high-tech sector, for which it functions as both an incubator and a market. Capital benefits from an oversupply of credentialed labour. This is demonstrated within the university by the division between tenures- faculty and contract instructors, and generally, **42** by the flow of low or no pay interns supplied to media and technical sectors

Capitalist cybernetics thus involves proletarianizing, de-proletarianizing and re-proletarianizing tenancies.**43** As the classic mass worker declined, leaving a diminishing group of protected workers with full time wages and benefits, capital’s labour force not only s spread out across the world, but also bifurcated, like some amoeba splitting into segments: into, one the one hand, an strata of technology professionals, and technicians, tending to identification with digital capital, though shot through with hacker proclivities **44**; and, on the other, a vast pool of un-, under- and vulnerably employed labour living the shadow lands between work and worklessness--in a very contingent and intermittent relation to the wage **45**. At the same time the professional sector is itself to some extent being re-proletarianized by free and precarious labour. **46** Most extreme, however, is the split between capital and everyone else.

viii) **The Silicon Sultans** **47** Ten years ago in the notorious memo, Citigroup (the investment bank) affirmed that “the world is dividing into two blocs—the Plutonomy and the rest”; [[2]](#endnote-2)Silicon Valley’s top tech magnates have regularly occupied Forbes annual list of the richest people on the planet **48**: According to a 2015 edition of the economist, the “silicon sultans” represent the most significant concentration of business wealth in the world. But this accumulation of high-tech fortunes is not the only or most significant role of cybernetics in the rise of the 1%, which is far wider.

ix) **Cybernetic Suction**. **49** Over the period of rapid cybernetic adoption—from the 1970s on—all around the world capital’ share of GDP relative to labour has steadily increased. According to the ILO (2011) labor’s share in 16 developed countries dropped from about 75 per cent on in the 1970s to 65 per cent just before the financial crisis. This fall is evident across “rich” and “poor” economies alike. In China labours share of GDP nearly 65 per cent in 1992 fell to 50 per cent in 2008. Explanations for this shift vary, but always implicitly or explicitly emphasize the role played by cybernetics.

The ILO estimate 46 per cent of the fall in labour share is due to the growing financial sector. Finance is amongst the most highly cybernetic sector of capital, now dependent on algorithms, computerized risk modeling and high-speed network trading. The OECD, in contrast, attributes 80 per cent of the shrinkage in labour share to “capital deepening” made possible by new technologies, which allow business to capture productivity increases and replace workers by machines, especially in routine jobs. Whichever explanation is most correct, the message is the same: cybernetics has assisted in a massive suction of value away from labour and to capital. The consequences are contradictory, complex and combustible.

**Inequality**: **50** New waves of cybernetically enabled industrialization diminish ‘absolute immiseration’—that is, life terminating poverty and also slowly, diminishing the chiasmic gap between some developing countries—China-and the advanced world. Nonetheless, at least on a national scale, ‘relative immiseration’—that is, inequality-is increasing. **51**

**Precarity**: **52** The over-supply of labour resulting from the combination of automation, supply chains and financialization not so much in unemployment as in the normalization of underemployment. A 2014 Gallup Poll conducted in 136 countries found that the reports the percentage of the total adult population that works at least 30 hours per week for an employer is 26%.

**Crisis**: **53** Cybernetic capital is volatile. The financial crisis of 2008 was a result of its capital’s cybernetic restructuring.It was not a crisis produced by global working class strength but by global working class weakness.[[3]](#endnote-3) Creating a cybernetic low-wage, supply-chain organized, increasingly automated global economy, results insufficient global consumption, prompting capital to flee productive investment into speculation e.g. sub-prime mortgages, leading to a massive crash,flat lining job markets and in global North a huge re-proletarianization of young people aspiring to intermediate strata positions.

 **Cascade** Paradoxically, this crisis provokes the first major political recomposition of a global proletariat, in the cascade of struggles of 2010-12, from Tahrir Square to Gezi Park, from Foxconn to Wall Street. **54**Strikes, work stoppages and workplace seizures were all parts of the new cycle; especially in China. **55**Struggles at the point of production continue. But in Europe, North Africa, and North America, more prominent are riots in streets **56** and occupation of “squares” **57-** sites of choice for those evicted from work, or are never invited to enter it **58**, **59**or who are overmatched in the workplace by capital’s automata and agile networks. **60**

Of course, every one of these uprising had its own specificities, determined by national and regional conditions. Very few, if any were articulated as revolts against cybernetic capital per se—they were as or more likely to speak in the languages of liberalism, populism and nationalism. However, most were set in train by the economic aftershocks of the 2008 financial crash, refracted in various ways—often as high levels of un- and under-employment, though also in terms of raising food prices in Egypt or austerity policies in the Eurozone. And all showed some common themes, a massive revulsion against corrupt, kleptocratic oligarchic, elites—the global beneficiaries of the huge upward suction of surplus value effected by cybernetic capital. This also involved the recuperation of cybernetics.**61**

The trope of Facebook revolutions, has been so fetishized in media reporting-- as if, for example social networks, not unemployment, caused revolt, or no uprisings had been possible pre-Twitter. This is nonsense. Nonetheless, these struggles occurred within populations for whom the cybernetic commonplace, even if access continued to stratify by class, fraction and zone, in contexts where, as Jack Qui (2009) puts it, division of digital-haves and have-nots is giving way to gradations of digital “haves” and “have-lesses” **62, 63, 64, 65**

Repurposing cybernetic media from the circulation of commodities for the circulation of struggles is, however, an ambivalent project. Movements against capital must use digital systems, because they are in a profound way inside such systems, and indeed of them, formed under conditions of technological subsumption that have for generations shaped workplaces, subjectivities, and cultures: it would be difficult to riot, organize, or occupy without using networks. At the same time cybernetics, perhaps to a greater degree than any other technological system, is imprinted with capital’s priorities of speed, tracking and perpetual renewal of abstract value. Digital media circulate news quicker than solidarities can form; enables the start-up of struggles, but also ephemeral fragmentation; gives visibility to militancy, but subjects it to omnipresent surveillance. Wide in scope, weak in ties; fast but evanescent; unstoppably viral but surveilled; these properties account in part for the ‘up like a rocket, down like a stick’ aspect of the 2011 revolts.

**66** Thus social media organizing alone is not capable of dealing with the most difficult problems faced by social movements today, namely the fragmented and segmented class composition of cybernetic capital’s workforce, fractured between strata of professionalization and proletarianization. These class fractions, though subject to common exploitation by capital, are frequently in tension with one another: thus, though a new technical composition of class is apparent, its political composition is rife with contradictions. Indeed, one of the lessons of this century’s cycle of struggles so far is that of the ambivalence *within* proletarian uprisings, which can manifest both in reactionary forms of fundamentalism and ethno-politics, desiring return to some mythic time *before* capital, as well as in progressive aspirations to go *beyond* capital.

To the degree that the so-called Facebook revolutions did not take the arduous route develop a politics that explicitly mobilise for more equal forms of wealth distribution and more public control of wealth production, they condemned themselves to a descent into atavistic conflicts, overseen by plutocrats and oligarchs east and west. This cascade of struggles produced many tumults, but in many cases reactionary victories and reversions, worse, wars such as those in Ukraine and Syria.

Today the world is nominally in economic recovery from the great crisis of 2008—a recovery that is however extraordinarily fitful and partial. The digital vortex intensifies **67**, with new waves of military-derived robotization **68**, Uber-style networked outsourcing **69**, continuing algorithmic financialization, **70** high levels of state and corporate surveillance **71.**

. The hypothesis of *Cyber-Proletariat* is that digitization has effected an alteration in the organic composition of capital—the ration of humans to machines-- that paradoxically enables it to encompasses more and more of the planetary population while rendering these workers less and less vital to its operations, as the human, certainly in any specific case, and increasingly collectively. In doing so it has created the technical basis of a new class composition, made up of proletarians who to various degrees and ways are both exploited within and expelled from the circuits of production, some in situations of abject poverty, others with rising incomes whose positive effects are nonetheless contradicted by conditions of even more sharply rising inequality, and all of whom face the constant precarity of populations increasingly surplus to capital’s requirements. The cybernetic vortex envelopes the globe in networked supply chains, making labour available to capital on a planetary scale. At the same time it, develops adept automata and artificial intelligence that renders such labour redundant, while also attracting increasing quanta of global wealth into an almost entirely automated financial speculation, creating a vast “over-supply” of labour relative to what capital is willing to wage, a working class, tasked with working itself out of a job, 46 toiling relentlessly to develop a system of robots and networks, networked robots and robot networks.

Consequently, we can expect further movements of revolt against inequality, insecurity, crisis and corruption. The brief synchronization of social movements that occurred between 2011 and 2014 has broken up. But though the tide of tumults has ebbed, many social unrests continue **72, 73, 74. 75**. The search for proletarian political composition therefore will continue. **76**. It will involve cybernetics. In the context of heightened surveillance, social media so important to the movements in 2011 are likely to become less and less friendly for activists. There will be attempts to find organization forms that combine persistence of vertical organization with the horizontal fluidity of networks; not a vanguard parties but distributed parties. Refusal and reappropriation will both become intensified, refusal by groups that conduct themselves off the grid to surprise capital with blockade, occupation and disruption, recapture both by yet more militant hacking, and by movement’s leaning encryption, anonymization and authentication. We are now in and of capital’s digital vortex. New struggles, more and less cybernetic, may open a path beyond it. A first step down that road is, however, for activists to recognize the changed cybernetic conditions of global class composition. **77**

1. Newest media do not create many jobs. 1.17 billion people use Google; Google employs 50,000. There are 1.35 billion Facebook users; Facebook employs 8,000; 232 million use Twitter; Twitter employs 3,500. 1901 US Steel, employed a ¼ million, more than the US army and navy combined. In 2014, Facebook bought What’s App for $19 billion: it employed 55 people. Only 0.5% of US workers employed in 2010 work for companies that didn’t exist in 2000. In terms of class composition, [↑](#endnote-ref-1)
2. This plutocratic class is divided between mere millionaires, of whom there are about 29.6 million, less than half a percent of the global population, and the Ultra-High Net Worth Individuals, with assets of over $50 million, of whom there are 84,7000 (Credit Suisse 2011). [↑](#endnote-ref-2)
3. The corollary of global proletariat has been the creation of “universal intercourse” for which digital platforms have been a main component. This was necessitated not just by capital requirement for global production but by its reciprocal demand for global consumption, for which the Internet is a major organ. It is a proletariat connected, to capital and to itself, by cell phones and social media. [↑](#endnote-ref-3)