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The Future of War and Peace: An Essay on Causal Analysis via AI and Autonomous Weapons  
Systems

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Abstract:

I analyze the roots of Global Crises in the cyber age and the nature and consequences of current multiple crises on our planet from global warming to militarization including autonomous weapons systems. Our global crises reflect deep socio-economic and political contradictions leading towards a semi-permanent malaise in all our societies. We must raise the question: how can we find such a path in the midst of these old and new-fangled local and global crises?

Aside from being both global and local, our analysis also has a particular geopolitical and historical focus. Given the multiple crises from global warming to global arms race, the stakes for our planet's future have never been so high.

Keywords: Causality of Multiple Global Crises, Arms Race, Cyber warfare, AI, Revolution in Military Affairs, Cruise and Hypersonic Missiles, Combined Arms Warfare, Militarization of Outer Space.

In this essay, I discuss the following two books on Global Crisis in the cyber age and then use this discussion as a background for analyzing the nature and consequences of current multiple crises on our planet from global warming to militarization including autonomous weapons systems. Needless to say, these and other crises reflect deep socio-economic and political contradictions leading towards a semi-permanent malaise in all our societies. Under such circumstances, it seems almost impossible to find a path towards global peace. Yet we must raise the question: how can we find such a path in the midst of these old and new-fangled local and global crises?

Aside from being both global and local, our analysis also has a particular geopolitical and historical focus. This is captured by the second book listed below with regards to the future of warfare in advanced capitalist countries like the US. Given the multiple crises from global warming to global arms race, the stakes for our planet's future have never been so high.

*The Book of Why* by Judea Pearl and Dana Mackenzie, New York: Basic Books, 2018 (BoW from hereon)

*Army of None*, By Paul Scharre, New York: W.W. Norton, 2018(AoN, from hereon)

Most importantly, the review and further analysis flowing from these two important contributions will point toward what Abraham Lincoln called the need for “disenthraling” of the American and European leaders and citizens from many modernist and imperialist illusions. As for the rest of the non-metropolitan world, I hope the ordinary citizens who have suffered greatly and continue to suffer will recognize their creative potential even in face of the tremendous present odds against peace and civilization posed by an arrogant and powerful 21<sup>st</sup> century imperialism. A better world is indeed possible through creative people's cosmopolitan internationalist movements from below. For this, however, understanding causalities—including the deeper socio-economic-political causes--- in both war and peace is crucial. Particularly, today much hype regarding “thinking” machines has obscured clear thinking by humans. Prospects for deep learning by machines have immobilized deeper thinking by us humans. This is both dangerous and irresponsible. Fortunately, both these books alert us--- though somewhat

unevenly--- about such dangers. Pearl in particular makes a good case for clear causal thinking that can open the path towards a cautious optimism.

As Pearl in BoW points out:

“If I could sum up the message of this book in one pithy phrase, it would be that you are smarter than your data. Data do not understand causes and effects; humans do.” ( BoW. P.21)

The 10 chapters in BoW explore the new “causal revolution” and urge humans to engage in clear causal thinking in all areas of life. The last chapter on *Big Data, Deep Learning and AI* is the most relevant for institution and organization building efforts and our theoretical forays into a possible pacifist internationalism. Many of my own collaborations cosmopolitically prefigure the creation of an information society with AI that is potentially capable of genuine intelligence and thus lead towards a futurism of hope.

Here Pearl’s most striking idea is that of a moral robot of the future. As he sees it:

Once we have built a moral robot, many apocalyptic visions start to recede into irrelevance. There is no reason to refrain from building machines that are better able to distinguish good from evil than we are, better able to resist temptation, better able to assign guilt and credit....We will be able to depend on our machines for a clear-eyed and causally sound sense of justice. We will be able to learn how our free will software works and how it manages to hide its secrets from us. Such a thinking machine will be a wonderful companion to our species and would truly qualify as AI’s first and best gift to humanity.(BoW, p. 370)

It may seem utopian in the dismal second decade of the 21<sup>st</sup> century with seemingly permanent wars in several parts of our world, particularly in Syria, Yemen and Afghanistan.; but such visionary thoughts were very much a part of a democratic socialist vision even as the world saw great instability and violence in the 1920s, 1930s and WWII. Otto Neurath and the Austrian socialists in particular as well as the Germans---Brecht and Eisler who collaborated on *Kuhle Wampe*<sup>1</sup>, for example--- articulated a theory of life in the cities beyond capitalist exploitation and squalor for the workers of the world. Scholars like Neurath even looked beyond the narrow capitalist horizon of controlling machines towards an increase of productive forces through the

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<sup>1</sup> The full title is *Kuhle Wampe, oder: Wem gehört die Welt?*, released in English as *Kuhle Wampe or Who Owns the World?*). It was a 1932 German feature film about unemployment and politics in contemporary Germany. The script Bertolt Brecht was the scriptwriter. The music for this film was composed by Hans Eisler.

use of science and technology that would eliminate drudgery and open up new ways to advance human creativity peacefully. I see Pearl's vision in a similar light.

Paul Scharre is more of a realist in the sense the word is used in international relations. Contrary to the crude, official realism often driving US and other aggressive capitalist countries' foreign policy and military interventions, classical realists from Thucydides to Morgenthau continuing on to the 21<sup>st</sup> century have been realistic about the darker aspects of power and have drawn attention to the dangers of war and the necessity to prevent wars realistically. However, most conventional theorists of realism in international politics could not think through the global and local problems of making a transition from capitalism to a higher form of global society.

A proper history of the rise of fascism, second world war, cold war and post-cold war chaos will show a world in fiery ruins. It was no small achievement to rebuild war-torn societies and the victories of the decolonization movements. But it was difficult even then, and it is difficult now, to imagine a future that animated the visions of Neurath and other thinkers like him. However, it is necessary more than ever to rethink the theory of transition from capitalism in many context-specific ways and to learn from the partial successes and many failures of 20th century socialist experiments.

It is productive to read AoN in this light. The six parts of this meticulously researched and courageously written and well-argued book lead the reader through the labyrinths of modern military technological development including AI and the seemingly endless high technology-dependent wars in the 21<sup>st</sup> century in particular.

Among the many contributions of this book are the discussions of diverse types of weapons systems starting with quasi-autonomous types like mines to TASMs and even more advanced projected autonomous weapons system now in the R& D stage. But even more important, in my view, are discussions about the role of the professional personnel with respect to combat not just instrumentally but also from the point of view of soldiers as moral agents. Here the personal combat experience of the author comes to the fore and there is a specially gripping episode in Afghanistan described in chapter 17 when the author had to decide whether an Afghan man was simply a goatherd or a Taliban militant from the top of a hill. It was a life or death decision.

Fortunately, the man turned out to be a noncombatant. Thus Scharre's observations on p. 316 are apropos:

Humans are not perfect, but they can empathize with their opponents and see the bigger picture. Unlike humans, autonomous weapons would have no ability to understand the consequences of their actions, no ability to step back from the brink of war. Autonomous weapons would not take away all human decision-making in crises, but they do have the potential to tighten the knot, perhaps so far that it cannot be undone. (AoN, p. 316)

The moral dilemma is clear. With a moral autonomous weapons system this dilemma can be addressed; but here is the problem of wars and military-industrial complexes running ahead of a morally oriented scientific approach like Pearl's to AI. The so-called AGI will be better at reasoning and identifying cause and effect relations but will it be capable of moral decision making as the author was able to in the battlefield in Afghanistan?

The political precondition for such scientific advance towards a morally sensitive technological system is to move towards a more open democratic polity everywhere and to deepen this process over time. I have discussed this in my various works on Technology Systems of which the autonomous weapons system is a subset. The same analysis from the ethics point of view can be applied. Without a fully deliberative democratic search for the common good and application of "do no harm" principle autonomous weapons systems can and most probably will indeed be dangerously destructive.

The political economist and ethicist can point out that the current global neoliberal capitalism is completely dependent on imperial finance capital and imperialist global politics and military protection in both the center and periphery. This is where AoN falls short in spite of its humanist intuitions.

Another problem is that not being a technical analyst of the systems, especially AI, Scharre is not able to assess completely the potentials and dangers of neural networks and deep learning with many hidden layers. As a researcher who along with my coauthors pioneered the application of neural network learning with many hidden layers in a fuzzy set theoretic framework to study financial crises among other things, I can assess the current claims regarding Big Data and Deep Learning as being largely hyperbolic claims. Most importantly, emergent phenomena in complex systems are very poorly understood. Being a technological optimist, I think we are probably 30

to 50 years from real breakthrough here. Till then or perhaps even then, we should be careful and practice a version of the precautionary principle.

Here the author's discussion of nuclear weapons systems is quite enlightening. In fact, his book opens with the recalling of a dramatic incident in former USSR weapons system in 1983. Had it not been for the moral courage of Lieutenant Colonel Stanislav Petrov, the electronic misrecognition in the Soviet defense system could very easily have started WWII. In this context, the discussion in part VI is particularly thoughtful.

One has to agree with the author's conviction at the end that autonomous weapons are not our fate---especially autonomous weapons left to themselves--- but the future of autonomous weapons systems along with much else will be our making. Here we need to pause, assess the current political situation and the complex causalities of a global capitalist imperial system. This requires going beyond the quasi-instrumentalist and quasi-humanist mode of analysis of AoN and BoW.

The rise of the neo-fascist right in the US and Europe would seem to already confirm the tragic predictions of a critical analysis of the global capitalist imperial system. In fact, the GIN(Globally Integrated Networks of Finance Capital) is now increasingly being mixed with the intoxicating tonic of racism against nonwhites and ultra-nationalism of white supremacy.

We need to understand that this is no *schadenfreude* and should not be so in any event. The world is now dangerously poised between the possibility of 21<sup>st</sup> century democratic socialism<sup>2</sup> or a high-tech barbarism with the latter showing far greater tactical successes so far than the former.

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<sup>2</sup> For a discussion of both 21<sup>st</sup> century imperialism and crises and 21<sup>st</sup> century socialism the reader is referred to:

Haider A. Khan. *Deep Financial Crises, Reforming the IMF and Building Regional Autonomy: Towards a New Hybrid Global Financial Architecture*, *EconPapers*, 2013 (<http://econpapers.repec.org/paper/pramprapa/49514.htm>)

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----- Lecture: What Is Imperialism? Finance Capitalism, Globalization and Ecological Sustainability, June 2014 (<https://www.youtube.com/watch?v=fnnqhhKkmKc>)

See also Khan(1998, 2002,2003,2004,2008a-d,2005a,b,2009,2012,2014a,b,2016,2017,2018a-c)

Let us go back to the last great financial crisis and look for the deeper roots and reasons for hope at the same time.

Despite the initial bafflement as the world economy was hit by the biggest financial crisis since the Great Depression, by now there is broad agreement on the underlying causes of the crisis: banks and financial institutions indulged in excessive leverage and excessive risk taking while regulators did not provide an adequate regulatory framework. In the US, the proximate causes also included the Fed policy under Alan Greenspan of supporting an artificial housing boom after the bursting of the stock market bubble through low interest rates and lax regulations in the housing and financial sectors in particular. Through various channels, the crisis was transmitted to other sectors of the economy and to nations across the world, leading to significant human development impacts on the poor and vulnerable. As the “Stiglitz Commission report”( the Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System), among other sources, emphasizes, the deeper causes relate to historic reversal of post-depression checks and balances of national and global economic governance.<sup>3</sup>

As the Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System put it:

“...the standard policy nostrums—that countries should have sound macroeconomic policies strong governance, transparency, and good institutions – may be less than helpful. Countries that held themselves out as models of best practices have been shown to have had deeply flawed macroeconomic policies and institutions and to have suffered from major shortfalls in transparency.”

Against this backdrop, there have been many calls for changes in the global financial and economic governance architecture that would lead to a more stable and less risky international financial system. For example, internationally, there is momentum around BASEL III, a package of proposals to strengthen global capital and liquidity regulations. The United States government

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<sup>3</sup> See Stiglitz(2010) and Khan(2013) for more details.



and various EU countries had introduced legislation aimed at reforming financial institutions under their jurisdiction.

Yet as the Greek tragedy that developed when a most reasonable and competent pro-Greek people economist, Varoufakis was the finance minister shows, EU has learned nothing except the reaffirmation of neoliberalism from this crisis. The Keynesian liberals are putting up a fight but without realizing the deep roots of this neoliberal-engineered crisis and many premises about neoclassical free market economics that they share.

For example, as a great neo-Keynesian political economic theorist who has written about many contemporary issues, Krugman<sup>4</sup> demonstrates his grasp of many of the theoretical mistakes of the neoliberals along with his mastery of empirical details. The contemporary economic and political historical scholarship displayed in his 2013 book has great theoretical reach and depth as well. But it also suffers from a lack of understanding of the structural instability of imperialism.

As Krugman himself explained earlier, describing both his research and his humanity:

So here we are, more than four years after the US economy first entered recession----and although the recession may have ended, the depression has not.....Tens of millions of our fellow citizens are suffering vast hardship, the future prospects of today's young people are being eroded with each passing month----and all of it is unnecessary.

For the fact is that we have both the knowledge and the tools to get out of this depression....we could get back to full employment very fast, probably in less than two years.

All that is blocking recovery is a lack of intellectual clarity and political will. And it's the job of everyone who can make a difference, from professional economists, to politicians, to concerned citizens, to do whatever he or she can to remedy that lack. We can end this depression---and we need to fight for policies that will do the trick, starting right now. (pp. 229-30)

It is important to remember this when reading Krugman's book. He has done painstaking contemporary historical research; but he does not pretend to be looking at these events with some

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<sup>4</sup> See Paul Krugman, *End this Depression Now!* New York: W.W. Norton 2013

artificial scholarly objectivity. Rather, what he shows is a kind of moral objectivity that celebrates the struggle of freedom for ordinary citizens because this type of moral and economic realism can offer arguments for the existence and validity of freedom for the citizens of our world. More importantly, freedom is a human concern and all humans regardless of their origins, race or gender have an equal moral capacity for freedom. The tragic irony is that the moral turpitude and intellectual cowardice of the policy advisers and politicians may be opening the doors to great instability and unfreedom in our world. This is the kind of morally relevant economic analysis that Krugman, Amartya Sen and many others including the present writer practice and defend.

In a somewhat more radical vein, Jeff Faux<sup>5</sup> pushes these themes much further by focusing not just on short term fiscal policy issues but mainly on a complex set of issues related to the economic decline of the middle class and the erosion of democracy in America. As Faux perceptively points out, a careful look at the evolution of the US economy since the 1970s can give us an insight into how much underlying conservative preconceptions---often not even articulated since these are taken to be common memories and common sense---and certainly never criticized, continue to dominate scholarship shaping our intellectual disciplines and our assessment of economic wellbeing in America. Faux ably questions such prejudices. He does so with both great intellectual rigor and coverage of contemporary research.

While the Keynesian liberals do not grasp the class roots of the problems of policy makers, even radicals like Faux do not clearly realize the role of finance capital and the contradictions between global accumulation controlled at least partly by the financial-industrial oligarchy and the weak social democratic states in the North.<sup>6</sup> Thus the real significance of the rise of right wing populist movements in the US and Europe is not properly grasped in the sense that this already presents a real danger of fascism and barbarism, and that varieties of neo-fascism are on the active political agenda.

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<sup>5</sup> See Jeff Faux , *The Servant Economy*, Hoboken, NJ: John Wiley 2012

<sup>6</sup> Even the Scandinavian social democracies are weaker than before. The historic gains made by workers esp. after WWII have been eroded. The erosion accelerated in the 1980s and continues today. US was perhaps the weakest of the social democracies and after remarkable gains relative to its own history in the 1960s, the erosion of the gains began in the mid-70s and accelerated since the 1980s under both Republican and Democratic Party administrations.

The global economic crisis of imperial capitalism is far from over. The summits that are still being held periodically and the buzz from the finance ministries of the G-20 are further pieces of evidence that the leaders of the global capitalist system are shaken by the unexpected depth and breadth of this crisis.<sup>7</sup> Yet they are seemingly powerless to do anything. What are the lessons ordinary people from all over the world should draw while business and political leaders ponder and flounder.

It is important to realize that the roots of the crisis lie in the rampant play of the free market forces that were unleashed long before the Bush administration started to carry out its particularly open attack on the US working class along with irresponsible financial liberalization. Of course the misadventures in Iraq and Afghanistan together with the failures of the neoconservative agenda make the policies of the Bush administration stand out as truly and arrogantly misconceived. But the Clinton administration also did not stand in the way of dismantling the remaining financial safeguards from the New Deal era. Politically, it also pursued a neoliberal imperialist policy abroad. This was continued with twists and turns but continuously by both Bush and Obama. The imperial continuity is there with perhaps more awkwardness of right wing nationalists who claim to be also isolationists under the Trump era.

Several political and economic factors contributed to the current depression and global instabilities. The relative decline of the US political and economic power in the 1970s led to the dismantling of the postwar Bretton Woods system of fixed exchange rates and global management of the World Economy through the IMF and domestic policies for growth in the member countries. IMF itself was transformed from an agent of maintaining global economic stability and prosperity to a dogmatic enforcer of neoliberal policies in developing countries. The room for discretionary macroeconomic policies for demand management and the creation of full employment shrank drastically. The draconian package of contractionary policies was presented as a recipe for expansion of these economies in an ironic and cruel gesture. In fact, the economic rhetoric was a cover for opening the vulnerable developing economies for further exploitation by the US, European and Japanese capital---finance capital in particular--- and their junior partners.

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<sup>7</sup> This was clearly the case in the 2018 summit in Argentina. Leaving the theater aside, it was remarkable for the absence of any substantive discussion much less any action on the multiple crises facing us globally and locally.

The successes of the 80s in forcing this anti-people imperialist agenda led the US policy pundits in particular to believe that a deregulated, largely privatized economy could be sustained indefinitely. The stock market booms and accumulation of private wealth at the top seemed to be proof of the efficacy of these ill-conceived policies. The dismantling of public institutions of economic management coupled with the ideological incantations of the virtues of the so-called free market led to a smug acceptance of the kind of situation that prevailed before the great depression of the 1930s. Alan Greenspan's gamble of easy money policy by the Fed to save the real estate market in the US from collapsing eventually resulted in the subprime debacle. The rest, sadly, is now all-too- recent history.

The historic electoral victory of Barak Obama created high expectations of progressive change in the US and the world. As a president Obama certainly has shown some courage with a vision and the same organizing capacity that helped him score his unprecedented victory. The 787 billion dollar stimulus package, in spite of all the earmarks, was still a sign of Obama's determination to do the right thing. But after winning in 2012, how far was Obama willing to go? Or, more to the point, did he understand the deeper reasons for the fix the world is in? Unfortunately, the answer to the first question is, not very far, and the answer to the second question is that his understanding was quite shallow. Although we experienced in the US a recovery that did not benefit the low income people, the inevitable downturn of a cycle together with another financial crisis is at best 2 years away.

After decades of arrogant abuse of political, military and economic power, the US ruling class---the leading ruling class in GIN(globally integrated network of finance capital)--- in particular faces an uphill task to undo the errors of the past and to build for a better future for all. The good news is that with determination and a genuine flowering of democracy here, and with the discontinuation of US imperial strategy abroad, the present crisis can be addressed from a long run perspective of creating a prosperous, sustainable green economy globally. This transformation can begin in the US with a green public investment program and a disengagement from imperialist practices abroad. However, defeating the neofascist movements globally, deepening democracy everywhere and building movements globally for a transition to ecologically sustainable peaceful societies must be on our strategic agenda.

However, these are precisely the points that are missing from the two books, BoW and AoN. Intuitively, both Pearl and Scharre seem to be aware of the dangers and yet unable to offer a clear causal analysis that indicates deep causal learning about the nature of our global political economic system with its tensions and contradictions.. If they did this type of dialectical analysis, it would have been clear that disengagement from war and march towards peace will be very difficult given the underlying political economy of imperialism led by the US capital and its capitalist state apparatus. Add to this the current political situation in both the US and the rest of the world and the situation might seem well-nigh hopeless. However, as both the authors intuitively also affirm, only a truly synthetic combination of intellectual advancement in AI and the moral recognition and appropriate institution building for peace can prevent an Armageddon.

To such excellent humanistic intuition, we can add a complementary analysis of global political economy and the scope for social movements to get us to a saner, safer world beyond the madness now prevailing. For this to happen, a global workers' movement together with allies from all sectors of the global society for a 21<sup>st</sup> century democratic socialism will be essential. Only such a broad-based morally and politically aware organized movement can reverse the current situation leading us towards a war that will be technologically more advanced and destructive than ever before. With this welcome but difficult reversal of imperialist practices, the march towards the progressive and humane global cities of the future envisioned by Neurath and others can finally begin. This means that we must abandon our Faustian quest and humbly learn not just to be smart with data and technology but also wise with wisdom from Talmud that Pearl quotes as well as similar wisdom from our collective global cultural resources. In this process--- and only through such a process ---of a global construction of nonviolent and peaceful socio-economic-political-symbolic institutions will we become the trustees and not the destroyers of our small but precious blue planet.

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