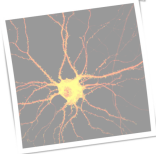
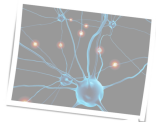
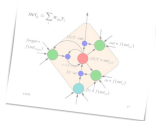
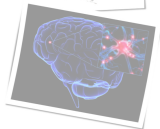


Viewpoint:
Artificial Intelligence and Labour
Spyros Samothrakis
Deputy Director, IADS
University of Essex

February 12, 2019



OUR STATE OF AFFAIRS

- ▶ How many hours do you spend working?
- ▶ Most of us live lives of (hard) labour
 - ▶ ...and we seem to like it
- ▶ Dystopic working patterns
 - ▶ Almost as if work was meant to set you free...

We hope you will fit well with our team's culture:

- Strong work ethic. All of us believe in our work's ability to change human lives, and consequently work not just smart, but also hard. It's not unusual to see team members in the office late into the evening; many of us routinely work 70-90 hours a week.

[https:](https://np.reddit.com/r/recruitinghell/comments/7003zb/strong_work_ethic/)

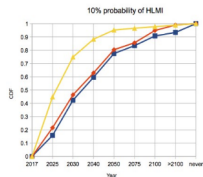
[//np.reddit.com/r/recruitinghell/comments/7003zb/strong_work_ethic/](https://np.reddit.com/r/recruitinghell/comments/7003zb/strong_work_ethic/)

UTOPIAS

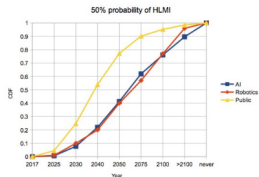
“If every instrument could accomplish its own work, obeying or anticipating the will of others, like the statues of Daedalus, or the tripods of Hephaestus, which, says the poet, “of their own accord entered the assembly of the Gods;”if, in like manner, the shuttle would weave and the plectrum touch the lyre without a hand to guide them, chief workmen would not want servants, nor masters slaves”

- ▶ We need AI to work for us
- ▶ The above has been quoted systematically since the first industrial revolution
- ▶ The ultimate machine is a non-conscious human-slave clone

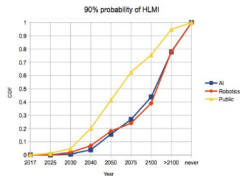
HOW FAR ARE WE FROM HUMAN-LEVEL AI



(a)



(b)



(c)



(d)

Walsh, Toby. "Expert and non-expert opinion about technological unemployment." *International Journal of Automation and Computing* 15, no. 5 (2018): 637-642.

THE ROARING 1920's

... But beyond this, we shall endeavour to spread the bread thin on the butter-to make what work there is still to be done to be as widely shared as possible. Three-hour shifts or a fifteen-hour week may put off the problem for a great while. For **three hours** a day is quite enough to satisfy the old Adam in most of us!...

► Heh!

Keynes, John Maynard. "Economic possibilities for our grandchildren (1930)." Essays in persuasion (1933): 358-73.

THE FURIOUS 1950's

...it would be wrong to think that such a substantial advance in the cultural standard of the members of society can be brought about without substantial changes in the present status of labour. For this, it is necessary, first of all, to shorten the working day at least to six, and subsequently to **five hours**. This is needed in order that the members of society might have the necessary free time to receive an all-round education. It is necessary, further, to introduce universal compulsory polytechnical education, which is required...

► Nope!

PRE-INDUSTRIAL REVOLUTION

<i>Period</i>	<i>Type of worker</i>	<i>Annual hours</i>
1200(ish)	Adult male peasant	1620
1200(ish)	Casual labourer, UK	1440
400-1400(ish)	English worker	2309
1400-1600 (ish)	Farmer-miner, adult male, UK	1980

https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_100646.pdf

THE FIRST INDUSTRIAL REVOLUTION

<i>Period</i>	<i>Type of worker</i>	<i>Annual hours</i>
1840	Average worker, UK	3105-3588
1850	Average worker, US	3150-3650

- ▶ 1760-1840 - first industrial revolution
- ▶ Horrid conditions, insane work hours, genocidal results

https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_100646.pdf

THE SECOND INDUSTRIAL REVOLUTION - FIGHTBACK

- ▶ 1870 onwards - Great War (1914)
- ▶ Labour rights, technological advancements
 - ▶ US federal employees get 8 hours per day (1868)
 - ▶ UK factory workers 12 hours per day limit (1832), The 1833 Factory Act,
 - ▶ Chimney Sweeps baned / UK 1875
- ▶ Drop in working hours until 1980 in the new world, trend (maybe) continues in the old world

Huberman, Michael, and Chris Minns. "The times they are not changin': Days and hours of work in Old and New Worlds, 1870–2000." *Explorations in Economic History* 44.4 (2007): 538-567.

THE THIRD INDUSTRIAL REVOLUTION

<i>Period</i>	<i>Type of worker</i>	<i>Annual hours</i>
1987	Average worker, US	1949
1980	Manufacturing workers, UK	1855
2016	Average worker, Germany	1363
2016	Average worker, Mexico	2255

- 8-hours US normal is around 2,000 hours per year

WORKING HOURS

M. Huberman, C. Minns / Explorations in Economic History 44 (2007) 538–567

549

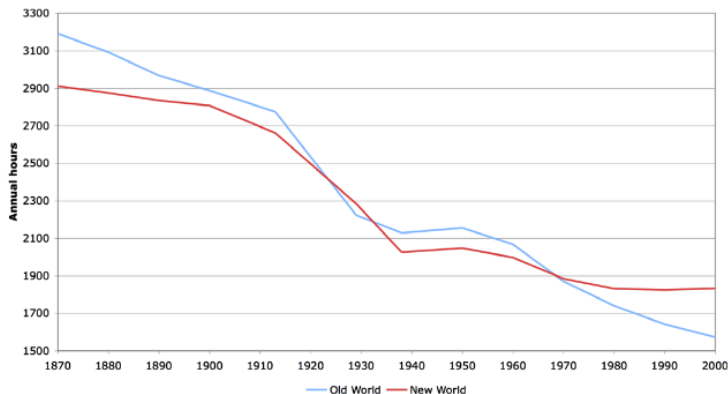


Fig. 1. Annual hours of work in Old and New Worlds, 1870–2000

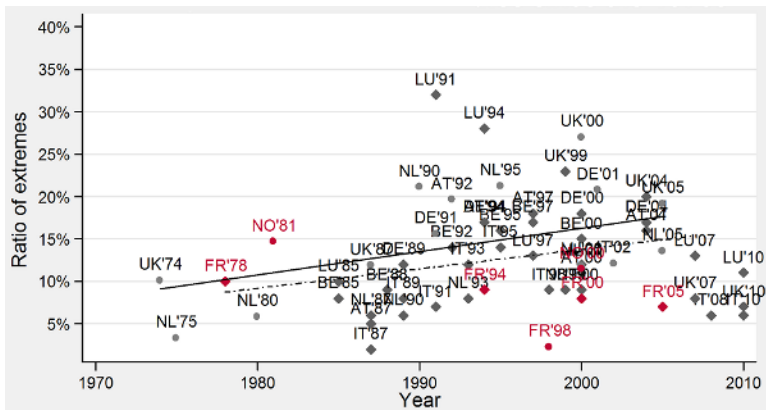
Huberman, Michael, and Chris Minns. "The times they are not changin': Days and hours of work in Old and New Worlds, 1870–2000." *Explorations in Economic History* 44.4 (2007): 538-567.

... TREND REVERSAL (US AVERAGE WORKER)

<i>Period</i>	<i>Annual hours</i>
1967	1716
1973	1679
1979	1703
1989	1783
1995	1827
2000	1878

Schor, Juliet. "The (even more) overworked American." Take back your time: Fighting overwork and time poverty in America (2003): 6-11.

EXTREME WORKING HOURS ARE INCREASING



Burger, Anna Sara. "Extreme working hours in Western Europe and North America: A new aspect of polarization." (2015).

AUTOMATION - AT THE SAME TIME...

- ▶ Automation has been a trend since the first industrial revolution
- ▶ There have been discussions about this forever, further automation is not something new
 - ▶ Chapter 15, The Capital

“Modern industry never looks upon and treats the existing form of a process as final. The technical basis of that industry is therefore revolutionary...”

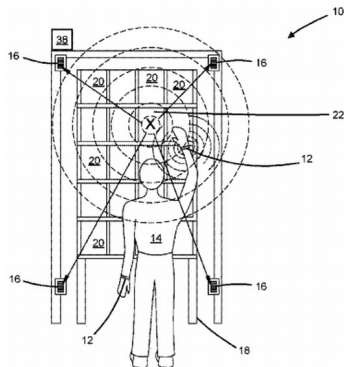
“A system of machinery, whether it reposes on the mere co-operation of similar machines, as in weaving, or on a combination of different machines, as in spinning, constitutes in itself a huge automaton, whenever it is driven by a self-acting prime mover...”

Marx, Karl. "Capital, volume I." (1867).

Braverman, Harry. Labor and monopoly capital: The degradation of work in the twentieth century. NYU Press, 1972.

HOW IS AI BEING DEPLOYED?

- ▶ It's automating management
- ▶ We don't have automated cars, we have people driving cars using automated scheduling algorithms
- ▶ Humans are still part of the warehouse, but managed more efficiently



<https://www.theverge.com/2018/2/1/16958918/amazon-patents-trackable-wristband-warehouse-employees>

LABOUR RIGHTS?

- ▶ Dead and dying
- ▶ *A daily maximum working time of 12 hours up to 5 times a week is to be generally allowed (thus allowing for a 60-hour working week), to be negotiated at the company level with the works council*
- ▶ Guess where...

<https://www.eurofound.europa.eu/publications/article/2018/austria-latest-working-life-developments-q4-2017>

WHAT'S HAPPENING WITH ALL THIS LABOUR?

- ▶ Why do we produce so much?
- ▶ Luxuries - conspicuous consumption
 - ▶ Expensive wines
 - ▶ The good life
- ▶ Money-power
- ▶ Social-power
- ▶ Transforming society



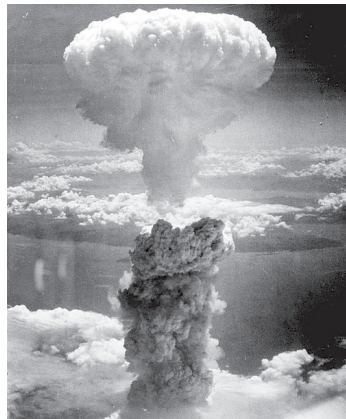
The Theory of the Leisure Class: An Economic Study of Institutions (1899).

MY ARGUMENT

- ▶ (Extreme) Labour hours are going up
- ▶ No labour movement to stop it
 - ▶ Or I can't see one clearly, but maybe there is something
 - ▶ AI is intensifying work
- ▶ What are you going to do - run to the fields?
 - ▶ Not many of us aspire to be farmers
 - ▶ We wouldn't even know how even if we wanted to
- ▶ So the only reasonable alternative is the trend continuous

IS THERE AN ALTERNATIVE?

- ▶ So for some of us, work is going to take more and more time, until it's all there is in life
- ▶ The traditional way out of economic problems - war
 - ▶ We destroy everything, and we rebuild using new tech / ideas
 - ▶ ... a bit painful
 - ▶ Nuclear weapons make this almost impossible
- ▶ Maybe there is no alternative, we just keep on labouring. . .



REVERSE THE TREND (?)

Gradual removal of humans from the labour process

- ▶ What are the technological bottlenecks that stop industries from becoming fully automated?
- ▶ What kind of labour are humans still involved in?