ALL WORK AND NO PLAY
Are games becoming the factories of the future?

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Freed from the shackles of work?

Industrialisation and automatisation were expected to fulfil the human dream of spending fewer hours working allowing us to devote more time to non-labour activities, such as playing. The machine was supposed to relieve us from the drudgery of mundane, repetitive tasks. During the Industrial Revolution, it would serve as an alternative to human muscle and replace our manual labour at assembly lines and in manufacturing. But in the Digital Revolution, the machine would start taking over tasks dependant on our cognition, such as calculating. As Norbert Wiener proclaimed in the early 1950's, the automatic machine, when used for the benefit of humanity rather than serving profit-oriented goals, could increase our leisure and, as a result, contribute to the enrichment of our spiritual lives (1954, 200). By and large, the automaton could have liberated humans from the need to work. It did not.

Replacing humans in one type of labour, the machine seems to have created other spaces in which the repetitiveness of tasks is realised anew. Only this time, these laborious endeavours are coated in the playful crust of digital games and the World Wide Web. On a wider social scale, the plenitude of free time has not become reality. Despite being proclaimed a ludic century, in which play is to become the dominant socio-cultural form (Zimmerman 2013), the 21st century is far from reaching the age of leisure and abundance, "for we have been trained too long to strive and not to enjoy" (Keynes 1963). This logic of purposefulness seems to be further intensified in the digital sphere. The constant development of the Internet is driven by the free cultural and technical labour of its users, who perform numerous tasks, such as writing fan fiction, modifying existing software and video games (developing "mods"), managing communities, and sharing content via social networks, amongst many others. In the age of digital economy, all the above leisure-related, playful, and free activities are assigned monetary value. After all, free labour is not only based upon idealism of the abundance of creativity and community building, but also on the capitalistic understanding of knowledge as added value. More importantly, free digital labour is performed voluntarily and is perceived as a pleasant activity – "[i]t does not feel, look, or smell like labor at all" (Scholz 2013, 2). This aspect is particularly interesting as it blurs the distinction between leisure and work, so that everything we do in life is supposed to follow the productivity logics and contribute to the development of digital economy.

New play economy

The above rationale naturally crept into the most ubiquitous pastime activities of the digital era - gaming. *World of Warcraft* (2004), one of the most popular games of the digital era, apart from

being an online fantasy with millions of people engaging simultaneously in collective mimicry, may be also seen as a factory, a sweatshop (Galloway 2013) or a for-profit virtual world (Nakamura 2013). The deadly uninteresting nature of repetitive tasks that Wiener heralded as being on the decline in the automation age seems to be gaining its second life in massively multiplayer online role-playing games. In order to level up their avatars, players undertake monotonous tasks, such as fighting ever more powerful monsters, collecting in-game items, or improving trading skills. This highly repetitive process of "grinding," while being part of the game, for some becomes a virtual assembly line. It contributes to the rise of a new class of players – the so-called work-players (Nakamura 2013) or "playbourers" (Kücklich 2005) who spend hours in the game world to acquire virtual goods and later sell them for real money. For those "gold farmers," playing translates directly to working, which constitutes an illustrative example of for-profit economy of contemporary MMOs. And since the economy is literally dependant on playing, it has been defined as play economy or ludic capitalism (Galloway 2013).

This seemingly mutually exclusive work-play joint venture gained worldwide attention with the rise of Alternate Reality Games (ARGs). Collectively, we spend three billion hours a week gaming. Why not turning this affluence of pastime into productive time, asked Jane McGonigal (2011). To prove her point, she designed ARGs**,** such as *World without Oil* (2007), "a massively collaborative imagining of the first 32 weeks of a global oil crisis" (worldwithoutoil.org). The vision of using games collaboratively to solve global social issues was put into practice already in 1961, when Buckminster Fuller introduced an analogue World Game in order to address the problem of overpopulation and uneven distribution of global resources. Similarly to the more current digital counterparts (ARGs, games with purpose, serious games etc.), it encouraged the players to cooperatively solve a set of potential scenarios in order to approach the problems of the world.

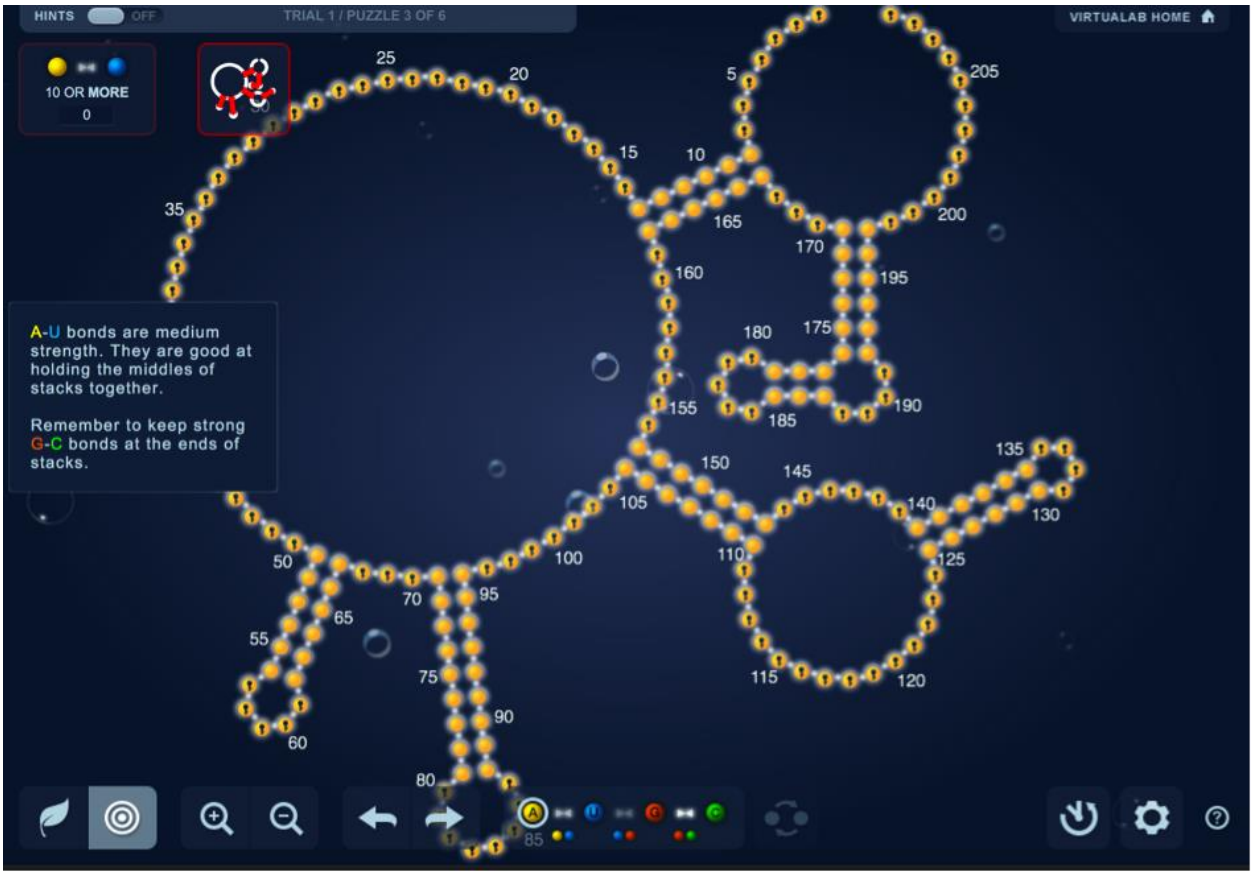
However, the division between work (especially in its non-Marxist understanding of self-alienating drudgery) and play cannot be perceived according to a strictly dualistic logic. For as much as playfulness enters spaces associated with work or seriousness, work elements permeate and influence playgrounds. The work-play relationship is neither fully embraced by the concept of gamification (Deterding et al. 2011) nor that of its opposite, labourisation (Dippel & Fizek 2015, 2016). The gradually dissolving distinction between the two qualities may be more accurately discussed within the framework of work-play interference (*ditto*), or work/play interplay (O'Donnell 2014).

Playful laboratories

The productive sort of gaming, intertwining work and play, has been perfected in the most recent ludic phenomenon – citizen science games (also known as data games or games with purpose). They constitute big data collaborative ludic spaces in which players solve puzzles, categorise, identify and tag data, and by doing so contribute to the advancement of various branches of science Through playing thousands of amateur scientists help researchers deal with numerous questions, from biology, neuroscience, astronomy, to linguistics and history of art, amongst others. The players predict protein patterns (*EteRNA*), map neural retina pathways

(*Eye Wire*), categorise galaxy shapes (*Galaxy Zoo*), tag social language (*Metropolitalia*) or art works (*ARTigo*).

FoldIT (2008) was one of the first citizen science games, developed as an online challenge for synthesising molecules. The input from this online playful laboratory turned out to be so successful that its initial prototype transformed into a worldwide ludic experiment renamed *EteRNA* (2010). Currently more than 38.000 amateur scientists participate in the playful activity of recognising and restructuring patterns (see illustration below).



The game is essentially a two-dimensional puzzle, in which the players are asked to design structures composed of four element types that make up the RNA (ribonucleic acid) molecules: adenine, guanine, uracil and cytosine, represented by distinct colours (yellow, red, blue and green respectively). The players are encouraged and rewarded on numerous levels by the game's system – from progressing to ever more complex levels, receiving points and badges, to acquiring status in the community (gaming leader boards), and finally recognition by the scientists, who synthesise the best virtual designs in their laboratories at Stanford University.

Since these online ludic laboratories are considered *a priori* pleasurable and leisure-oriented game spaces, they are especially successful in enabling "productive activities of connected human minds" (Terranova 2013). This productivity, however, is based on a voluntary decision. Citizen science players are neither forced, nor motivated by the monetary compensation for

hours of their immaterial work. Similarly to other participants of the digital economy, they act out of their own desire for cultural production. They are willingly contributing to the development of knowledge. The immediate leverage of a playful and pleasant activity with a socially productive outcome, the element of competition in a large collaborative environment, and the feeling of belonging to a community with a common goal, seem to be the basis for the success of citizen science games.

Press play for work

The idea of changing the world by turning gaming into something productive embody a contemporary romantico-cybernetic understanding of play (Galloway 2013). On the one hand, play is perceived as a spontaneous and almost childlike activity. On the other, in many instances, it has become almost synonymous with complex iterative systems. Commercialisation and systematisation of play, gamification, or productive collective gaming operate in accordance with the systemic and structural quality of play. At the same time, they draw from the Huizingian spirit, associating play with something pure, almost poetic, and above all else meant to entice pleasure. And this romantico-cybernetic fusion does the trick – players are invited into the world of something they intuitively associate with fun and frivolity, all the while performing repetitive and monotonous tasks, which bring to mind the automated machine-like processes.

What remains fascinating in citizen science games is the relationship between the human, the machine, and the data. The human agents contributing to research in big data collaborative online games for science are of two kinds - the scientist and the citizen science player. Their roles played out in the human-machine assemblage are distinct and contrasting, although both of them rely upon the ludic simulation. A team of scientists in the laboratory (e.g. Standford University) is analysing the already sieved data in search for the significant pieces. The deluge of data is classified, labelled, and identified by players, each sitting in front of their own computer, which, together with thousands of other calculating machines, form a networked production line. In this sense, citizen science games or other data games may resemble virtual assembly lines where big data is perfectly mined in an iterative factory-like system. The machine, on the other hand, stores the big data, runs the game, calculates the results delivered by thousands of players, communicates between the players and the scientific team, and networks the whole community. Most importantly, it learns from the human behaviour.

Currently, humans are excelling at solving puzzles and predicting patterns – skills that form the basis of data gameplay. The question is whether the unparalleled power of the human brain may soon be replaced by such algorithms as EteRNA Bot, which is already on its way to synthesising excellence. The learning and playing digital machine is enticing fears born in the age of industrialisation and automatisation. Some journalists paint bleak visions of future games in which humans are not competing against one another, nor against machines, but are serving as “intelligence-gathering slaves“ in a playful factory simulated by a digital brain. In this case the anxiety surpasses the old demons of the Industrial Era, where machines were taking over tasks

performed by the humans. For some there seems to be something deeply unsettling about the fact that machines are no longer merely the tools for the simulation of the playful worlds, but also the autonomous players in those very worlds (see the AlphaGo playing system, which in January 2016 defeated a human player for the first time in history). We should realise, however, that such fearsome visions are still deeply rooted in the model of human-machine co-existence, where the main role of people is to supervise machines, and the main role of the machines is to obediently perform upon the human command. In our digital era, when machines are ever more present and refined, we need to constantly re-negotiate and re-think their place in our everyday lives. Or, give up the anthropocentric perspective altogether, and accept the human-machine tandem as an integral part of the digital landscape, in which neither one side nor the other is in the privileged position and both, following the argument by a German media theorist Friedrich Kittler, exhibit distinct forms of autonomy: "machines and humans come together not as surrogates or substitutes for one another, but as co-functioning elements in larger sensory systems" (in Hansen 2015, 224).

The [un]certainty of prediction

The brief ludic musings proposed here are speculations based primarily on the current playful digital phenomenon of data games and an extended metaphor of productive gaming as working. Both concepts are closely intertwined with computing machines, and the question of the relationship between the machines and the human agents. Are we accepting the autonomy of the first, or guarding the superiority of the latter? Are we fearfully anticipating ever more powerful non-human players, or embracing the role of machines (algorithms, bots or robots) in our everyday? After all, the rules of the game between the two may change just as in the croquet match played out on the pages of *Alice in Wonderland*, "… where balls are hedgehogs which walk off, the hoops are soldiers who march to other parts of the field, and the rules of the game are made from instant to instant by the arbitrary decree of the Queen" (Wiener 1954, 193). Building upon Lewis Carroll's metaphor, Weiner refers to Marxist and fascist Queens of his times in the wake of World War II. The question remains – who is stepping into the Queen's shoes today? Is it the capital represented by such corporations as Google, who, like other, support data games and have thousands of players at their disposal for building ever more intelligent and autonomous algorithms? Or, simultaneously, is it governments that are closely cooperating with big business? Or, maybe the empowered digital citizens, ready to play hand-in-hand with AI?

What is at stake in the human-machine tandem seems to be particularly shining through various types of big data games. At their core, neither the repetitiveness of tasks performed by the humans nor the calculating supremacy of the machines are negatively charged qualities. It seems humankind needs those predictable patterns of self-improvement, And if apart from daily chores, these patterns are realised in online citizen science games, so be it. It is, however, the context of "playbour" that makes all the difference. If the free labour of thousands of human players is used to envision and develop powerful algorithms, which will serve capital-driven parties, we have reason to be concerned. In the past few years, Google has been investing in artificial intelligence projects such as DeepMind, The company also provides financial support to

some research teams standing behind citizen science ludic projects. Not only does the relationship between work and play, or machines and humans need careful study, but also the alliance between science and the capital that is shaping the former.

But above of all, let us not be too easily fooled by the vision of playing machines. For the machine performs exceptionally well in the cybernetic games, but struggles in the much less formalised playful endeavours, living from imprecisions, ambiguities, or poetic language (linguistic puns or games based on refined literary descriptions such as *Dear Esther* or *The 39 Steps*, amongst others). Let us not strive to turn all our games into useful machine-simulated big data worlds, and engage in both strategic anticipatory games as well as emotion-stirring poetic plays that feed the conscious and logical mind as much as its unconscious counterpart. After all, "the world is many things, and no single framework is large enough to contain them all, neither that of man's science nor that of his poetry, neither that of calculating reason nor that of pure intuition" (Weizenbaum 1976, 277).

Acknowledgements
The first version of this article has been published in the 2015 autumn issue of the German TUMULT magazine.

Many ideas elaborated upon in this essay were inspired by or came directly into being during an on-going research on play and work with an anthropologist Anne Dippel.

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