MINDING THE GAP:
COMPUTING ETHICS AND THE POLITICAL ECONOMY OF BIG TECH

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In 1988 Michael Mahoney wrote that "[w]*hat is truly revolutionary about the computer will become clear only when computing acquires a proper history, one that ties it to other technologies and thus uncovers the precedents that make its innovations significant*" (Mahoney, 1988). Today, over thirty years after this quote was written, we are living right in the middle of the information age and computing technology is constantly transforming modern living in revolutionary ways and in such a high degree that is giving rise to many ethical considerations, dilemmas, and social disruption. To explore the myriad of issues associated with the ethical challenges of computers using the lens of political economy it is important to explore the history and development of computer technology. A significant turning point was in the late 1930s with the work of Alan Turing in conjunction with the work of Alonzo Church and his Lambda Calculus. The 1940s and 50s were integral for the researching and development of computing technologies. According to Edwards (1995) the technical demands of weaponry in WWII created huge needs for a large number of fast computations and since then the US armed forces have been one of the most important agents for advanced research in computing and this research along with the massive investments in military projects during the 1950s brought in a new entrepreneurial and interdisciplinary way of collaborating between scientists, administrators and military personnel while breaking down bureaucratic barriers (Turner, 2006). All that, produced concepts such as cybernetic systems, webs of information and the importance of gathering and interpretating of information (or data) as a way of making sense of the physical and social worlds (ibid.).

It comes as no surprise then that the field of Computer Ethics was founded in the 1940s by Norbert Wiener, almost simultaneously with the development of electronic computers, in what he called "Cybernetics" (Bynum, 2000). Wiener predicted computing technology's potential social and ethical implications while working on developing WWII anti-aircraft weaponry. Turner (2006) writes that after WWII two cultures emerged in the US around technological progress. The first was the military – industrial research that was established in the 1940s and came into full power during the Cold War. The second emerged some years later as a reaction to the first and it was the American counterculture which Turner defines as *"a culture antithetical to the technologies and social structures powering the cold war state and its defence industries"* (ibid). The various, social, political and military pressures of the 40s and the 50s served as the boiling pot that led to waves of political protests and personal exploration of the 1960s for which, Turner writes "*much of it aimed at bringing down the cold war military-industrial bureaucracy"* (2006, p. 3).

As many academic institutes began to develop courses to teach computer programming in the 1960s, a culture of openness and sharing emerged with a focus on developing an understanding of the potential of computers, as well as a promotion of ideas such as the decentralization of power, and a mistrust of authority, which were already present in the counterculture zeitgeist of that era (Levy, 1984). At the same time, according to Bynum (2000), the first ethical and social implications of computing technology were starting to appear as well as concerns about topics such as how these new technologies could facilitate authoritarian actions like privacy invasions by government agencies. Many of these concerns were captured in various artistic forms (films, books, comics etc.) as well as in scientific studies, government discussions and proposed legislation (Bynum, 2000).

Computer ethics at the time was mostly about the potential consequences of future computing technologies. As technology progressed and computers found new uses in already existing aspects of everyday life and in other fields of study, such as medicine (Bynum, 2001) new ethical considerations started to emerge. In the 1980s, two seminal works came out establishing the ethics of computing as a distinct field of study by James Moor (1985) and Deborah Johnson (1985). At the same time other thinkers, like Donald Gotterbarn (1991), were proposing that computing ethics should be mainly focused on being a professional code of conduct. Indeed there have been very important steps taken by professional bodies to establish code of ethics and good practices such as those by the ACM (1992) and IEEE (Shahriari & Shahriari, 2017). Since the 1980s a myriad of actions have been taken to promote computing ethics including new theories and considerations of ethics (e.g. Floridi, 1999; Gorniak-Kocikowska, 1996). However, little attention has been paid by Computer Science (and related fields) into the historical – political – and economic realities that have shaped and still influence the development and evolution of current computer technology.

In the 1990s, the emancipatory belief in technology carried over from the counterculture of the 60s fused with the entrepreneurial and libertarian thinking of Silicon Valley in what Barbrook and Cameron term the 'Californian Ideology' (1996, p. 1). They argue that this idea of the future was adopted by an assortment of diverse groups from computer enthusiasts, to students, to investors, to activists all the way to politicians in the US (ibid). They further state that this antithetical mix of "technological determinism" and "libertarian individualism" has become the "hybrid orthodoxy of the information age".

Studies show that a number of socio-economic factors in the last fifty years played significant roles in the creation of digital economy as it is today. Srnicek (2017) places first the economic downturn of the 1970s with the drop in manufacturing profitability in advanced economies. Then comes the dot-com boom and bust of the 1990s where technological infrastructure saw great private investments and the internet was commercialised for the first time. Venture capital (VC) was paramount for the development of this newly-formed sector. The business models at the time were in uncharted waters and revenue generation was still a puzzle, therefore many companies would aim for growth rather than profit (Zuboff, 2019) or as Srnicek puts it, the goal of internet based companies since then has been monopolistic dominance (Srnicek, 2017). The dot-com boom years saw huge VC investments in Silicon Valley of what researchers termed as "impatient money" (Zuboff, 2019) looking for a big and quick return on investments from promising start-ups increasing the hype and financial volatility in the sector.

When the dot-com bubble burst in 2000 all these risky investments became even riskier causing panic in the market, making investors in Silicon Valley reluctant to invest further or to even abandon companies altogether leading to high start-up mortality rates (ibid). Tech start-ups from then on had to find ways to generate revenue. The new "mantra" for Silicon Valley investors became *"an ability to show sustained and exponential profits"* (Zuboff, 2019, p. 74). Zuboff argues that this stress for survival was what led to the defining moment in the evolution of the digital economy. She takes Google as the prime example for this where the company, struggling for its survival, and with an abundance of stored behavioural data that seemed useless at first, would realise that they can be used to run targeted, personalised ads for its users and thus generate revenue (Zuboff, 2019). That led to an increasing *"behavioural value reinvestment cycle"* (p.97) and would constitute what Zuboff defines as "surveillance capitalism".

The final factor Srnicek includes in his analysis is the 2008 financial crisis which brought about low interest rates and companies with a surplus of cash looking for better investment rates in higher risk sectors such as the tech industry (Srnicek, 2017). The aforementioned economic conditions along with the social narratives of emancipation and social change through technology, the transition towards immaterial commodities also known as the 'knowledge economy' and the need of tech companies to better handle the commodification of the vast amount of data collected through online services heralded the creation of digital platforms as the new business model. Srnicek (2017, p. 52) writes that *"often*

arising out of internal needs to handle data, platforms became an efficient way to monopolise, extract, analyse, and use the increasingly large amounts of data that were being recorded."

The hope that technology will save the world has become a popular narrative for many technology corporations and it can be seen in company mottos like Google's "don't be evil" but the adoption of surveillance capitalist, neo-liberal business models in the form of 'platformisation' has come into stark contrast with some of those narratives as can be seen from the IPO manifestos of several big tech corporations (Dror, 2013).

Digital platforms today are not only part of digital technology companies like Google, Facebook and Airbnb but also part of traditional industries such as General Electric, Siemens and others. Some researchers even argue that all these companies have effectively turned into data companies. Digital platforms, and more specifically their services, their level of control and their use of computing technologies have very significant social and ethical implications in democracy, finance, education, cultural production and labour and are defining how powerful technologies such as AI and Machine Learning are being used globally.

This paper argues that specific socio- economic circumstances have, to a large extent, formed the ground where modern computing technologies emerge and this is something that needs to be prominent in any considerations about the ethics of computing. For example when a social media platform's business model depends on capturing the user's attention for as long as possible so they can see more ads the platform's design will try to make sure that this is the case despite of what is ethical and the people who would have to work on that will have to do so within the rules of the market or the interests of the company. Addressing the issue from a computing ethics point of view is important but it might not be enough.

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