An Analysis of both the Optimisms and Fears Artificial Intelligence brings

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***Abstract*—The effect of both the digital and industrial revolutions has without a doubt had a colossal impact on all areas of our life from education, communication, employment and security to name a few. We're at the precipice of a new kind of revolution, the Artificial Intelligence (AI) revolution. Regardless of personal opinion of this forthcoming development it will fundamentally change our society in a plethora of aspects. The aim of this paper is to examine what exactly this highly anticipated revolution brings with it through a bipartisan lens and to uncover if perceived worries or praise are justified.**

I. INTRODUCTION

A study conducted in early 2019 on over 2000 American citizens showed 41% of those surveyed somewhat or strongly support the development of AI [27], meaning more than half had reservations about the continuous development of the technology. Considering the underlying dystopian tone that articles, movies and books tend to attach to any AI related story it isn't completely unfound that it became so unfavorably viewed by members of the public, most of whom have their own genuine fears about the rising technology. Major figures including Elon Musk and Stephen Hawking have expressed their own worries about AI, Musk considering AI to be our "greatest existential threat" [13] which has no doubt stoked the fires of worry directed toward it, however are they focusing too much on the extreme potential of AI instead of the genuine fears normal people feel to be of more intermediate importance including job redundancy *(due to automation)*, deep faking, security vulnerabilities, invasive surveillance, social credit rating systems and enhanced militaristic capabilities [27].

While there seems to be key scientific figures quoted frequently about our need to prepare for an AI filled world there doesn't seem to be any major response from those with the power to regulate or control the speed at which we transfer into the next stage of this technological epoch. However silence does not imply ignorance with massive investment into the technology and spending on AI systems on track to reach $100 Billion by 2023 [12], a result of the large scale technological economic investments that encourage the creation of new technologies to occur rapidly, something one would consider to be great news, however there are those that argue that accelerating the development of AI without proper risk analysis and planning for the future may have us facing easily avoidable obstacles had there been equal funding, care and attention given to risk planning for potential forthcoming challenges.

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Exaggerated theories and fears about AI can absolutely hinder public perception and confidence which may in turn lead to uninformed discourse or debate which could further alienate the technology and result in undeserved consequences for regulation, perception, funding and research. With over 81% of people surveyed in 2018 believing Artificial Intelligence will lead to a dystopian future [26] it seems to be evident people have already made up their mind. Are they correct in their judgement or is there another side to the story that needs to be told? With AI integration and development set to accelerate greatly should there be more of an effort to colloquially educate the general public on how it works and the potential benefit it could bring to our individual lives?

II. WHAT ARE PEOPLE ACTUALLY AFRAID OF?

Technological worries related to AI have remained somewhat consistent throughout the last decade with newer fears emerging as the decade drew to a close and new technological advancements were made. The big three that have persisted being; Human Redundancy in the Workforce, Mass Surveillance *(coupled with facial recognition technology)* and also Fake News *(coupled with deep-faking technology)* [17] .

A. Human Redundancy

With 54% of EU jobs & 47% of US jobs considered to be high risk and likely to be automated by 2040 [10] it's become plain as day we're in the midst of a workforce shift. The EU and US aren't the only ones being hit hard, China's manufacturing employment dropped 19% since 2000 [14] despite its production output growing considerably which isn't welcome news for manufacturing employees.

Artificial Intelligence will absolutely affect very different types of occupations however how it will is still subject to substantial uncertainty. New methodologies and analysis show that as technological capabilities increase AI may even compliment some fields of work without reducing the need for humans [25]. However, multiple varying factors such as occupational mobility, technological advancements, potential regulations and human capital investment will ultimately be involved in uncovering the outcome, meaning at this stage it can't be determined if the fears people hold about mass automation are well placed without speculating.

B. Mass Surveillance

We're in a digital era that has brought with it new innovations — tablets, laptops, smart phones and rejuvenated old

applications and transitioned them into this digital world — smart fridges, smart watches and smart cars, to name a few. Some may see this as an Orwellian idea, your own devices monitoring your location, habits, schedule, interests and social circle but a lot of those same people would find it hard to deny the convenience of the perks these devices bring. These innovations aren't without their vulnerabilities such as smart home devices network vulnerabilities allowing private metadata to be compromised [20] but that's somewhat tame when you consider existing CCTV surveillance devices, some of which have already been redeveloped and connected to databases of facial images collected by social media applications and governments.

Where technology like this really thrives is in societies that uphold systems that require the constant monitoring of it's citizens. China's new social credit system model that rewards it's favorable citizens with points and punishes unfavorable behaviour with a deduction of points becomes a lot more controversial when you add mass surveillance integrated with facial recognition. A master database which contains all tracked citizens and their social credit data is shared between all branches of government so you may end up paying less for a bill if you had a favorable credit rating or have opportunities limited if you're considered to be a problematic citizen [21].

Considering rapidly changing devices, less individual privacy and constant stories of security vulnerabilities among huge companies that collect user data it isn't unfound that mass monitoring is consistently and strongly viewed as a genuine issue by a large amount of people [27].

C. Fake News

Just over half of all news consumers receive and share their news from online sources [7] so it wouldn't be difficult to penetrate huge audiences with information of all types, including false information. Fake news is defined as *Any false information that is intentionally intended to be fully or largely false or misleading that is spread through social media, mainstream traditional print or broadcast news media.* [18]. A common myth is that fake news has only recently emerged, however fake news has been an issue since the dawn of information sharing, only as of late has it become a colossal issue with the mass availability of information.

Combining fake news with deep-faking technology can cause huge disruption, sway public opinion, influence elections or even destabilize democracies [3]. If all videos published and currently in circulation have the potential to not be legitimate then at what point do we start questioning every public interest video that surfaces? Developing countries are highly vulnerable to deep-faking manipulation, violence erupted in Rohingya after faked and misleading images were shared depicting one of their local leaders in the company of a known rebel [6]. While the conflict has since disengaged from this issue the temporary hysteria and damage it caused could have caused some unwanted domino effects.

Totalitarian regimes may also use this technology to cover up any atrocities that may happen to be photographed or caught on video, potentially re-skewing the narrative in their favor. Fake news coupled with deep-faking is a very slippery slope and one that people have justifiably identified as one of their top worries for the future. [26]

III. Optimisms and Favorable Concepts

There's a lot to be fearful of when looking at the rapid acceleration of Artificial Intelligence however it would be ignorant to ignore the optimism people hold about the potential to see this technology thrive and positively influence our individual lives. Positive Environmental and Economic impacts are considered highly favorable concepts [23] when analysing public favourably and optimism for the technology, showing regardless of preconceptions people can still recognise the positive impacts of AI.

A. Environmental Impact

The Industrial Revolution has contributed greatly to a wide range of environmental issues being experienced all around the world. Deadly levels of air pollution, deforestation, polluted water sources and a decrease in biodiversity can be blamed in large part on industrialization [15]. Applications of AI may be on track to address environmental issues, distributed energy grids, smart agriculture and connected/autonomous electric vehicles [1] are considered 'game changers' and said be highly beneficial to our environment.

An overhaul of our current transport system is said to be inevitable within the next decade [16]. A global transition to autonomous electric vehicles isn't far down the line including a vital improvement to our transport networks as vehicles communicate with each other and with infrastructure to identify potential hazards while improving navigation. A smart machine learning transport system coupled with car sharing is predicted to further lower emissions and greatly benefit the environment [15]. Research conducted in 2015 showed that between 2005 and 2009 there was 1 vehicle collision for every 1.5 million kilometres driven *(By Humans)*. [19] Driverless cars are considered even safer than Human occupied vehicles [24], another one of their big selling points after convenience, however autonomy when it comes to vehicles is a very volatile area. Autonomous vehicles could make breakthrough after breakthrough but just one widely reported incident is enough to increase public unfavorability. In 2018 during one of Uber's driver-less vehicle tests a pedestrian was struck and killed while she was crossing the street in Arizona [5], the incident made headlines and no doubt negatively influenced public opinion of driver-less cars.

The application of AI and machine learning is also gaining traction within the energy industry. AI has the potential to enhance the concept of distributed energy to allow efficient and smart allocation of energy by enhancing the predictability of supply and demand for renewable energy [9]. Smart Grid technology involves enhancing different areas of power systems and takes into consideration end the users equipment and behaviour in the makeup of the grids design resulting in an effective and reliable energy delivery system.

As long as environmental issues remain a high priority for our society we will continue to see continuous funding

and development for such technologies in order to address or reverse previous long term non-sustainable practices.

B. Economic Impact

The economic potential for AI has people optimistic and why wouldn't it, research shows by 2035 AI could double annual economic growth rates [22]. According to David Autor, Professor of Economics at MIT, the value coming from new services and innovations outweighs the potential substitution of humans in the workforce [11, p.27]. Labor productivity is set to grow by an average of 30% among developed countries by 2035 [22] and global GDP could be up to 13.8% higher in the same year with thanks to the impact of AI [2], promising statistics in a highly volatile field.

Technologies underpinning the transition of AI into the economic world (*IoT, 5G & Robotics to name a few*) have the potential to alter manufacturing into a single technological-physical entity in which emerging technologies, production and internet are amalgamated into one [4] allowing for incredibly fast independent decision making based on information received and production-line enhancements.

Artificial Intelligence can have a wondrous affect on the economy but only if the conditions are right for it to flourish. Should overall labor income not see an increase from the economic benefits of AI, growth may cease which may cause consumption to stagnate causing unwanted strain and setting back the economy. This is one of the main arguments as to why policy should be introduced to regulate and carefully implement AI while safeguarding occupations or positions that will be influenced by AI [8].

IV. Conclusion

Artificial Intelligence is a fascinating technology that is guilty of being misunderstood. Being a rising powerhouse in the technological world it's an easy target for untruths and click-bait style articles that alter the public perception and favorably of it, a dangerous tactic in a world where communication is so readily available and shareable. Most fears held in relation to the technology are justified since there hasn't really been any effort to dismantle or argue against them in a public forum. When people hear a negative story in relation to any of AI's applications it will absolutely reinforce their confirmation bias in relation to the topic. The real solution is to be honest with people and to show them that AI isn't perfect and won't be for a long time, if ever, but regardless of the imperfections associated with it to consider the global benefits that fully integrating this technology with multiple parts of our lives will bring. With the help of regulations coupled with slow and careful implementations we can incorporate it into multiple aspects of our lives with a minimal risk and high return.

Optimism is slowly starting to rise as AI becomes more intertwined with our lives, perhaps people seeing first hand how this emerging technology compliments our already highly technological world alters their opinion. Doomsday prophets would be better served to sit back and let technological advancements be made before jumping the gun, the singularity may very well be inevitable but for now we have very real obstacles facing us in relation to AI that should be highlighted and dealt with before we start to plan our resistance against the robotic overlords.

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