Final Report: Case Studies on AI and the Workforce

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This final paper discusses the Impact of AI on the workforce by examining two modern day applications of AI. The two case studies will be analyzed via a description, discussion of their impacts on the workforce, and their impact on society. This paper will also categorize the case studies in the following three categories uses of AI that eliminate/replace jobs, jobs that will be augmented by AI and jobs that can only be done by humans.

The first instance of AI application is Tesla's Autopilot in their vehicles. The eventual goal here is complete automation where the human user has to do nothing but currently the cars are in the testing phase for that kind of use (Autopilot). Currently, autopilot is available but the human user has to watch the car and is still liable (Autopilot). At the moment this is a job that is augmented by AI but is moving towards replacement by AI.

In terms of workforce impact, currently the impacts are minimal because the technology is still in its infancy, is not %100 perfect, and is still expensive. Currently because the technology is incomplete and expensive the impact on the workforce is quite minimal. No large sector of jobs is being impacted in a meaningful way. That being said it's more interesting to look a little down the road at the potential future when the technology has matured to the vision many have for it. This coming to fruition would have massive implications for many industries specifically the entire transportation industry. In this case specifically on those doing trucking and Uber, Lyft and Taxi driving. (Note the same argument applied to planes and boats but that is out of scope for this essay). Uber for example has an entire self driving division and is going through test runs currently in Pittsburg with the ambition to implement a self driving fleet to make the company more profitable (Marx). In addition Uber has actually already made a self driving truck deliver under close human supervision (Wakabayashi).

In terms of overall impact on society, there are many pro’s and con’s for this outcome. Obviously, first and foremost it’s bad for those who currently rely on trucking, Uber, Lyft and Taxi for employment

because their jobs are eliminated. However the impact on the customers for will likely be positive in that people who don't like driving or can't drive for various medical reasons can use this system for comfort and convenience. Beyond this it is probably good for the organizations Uber, Lyft and Trucking as a whole in that they can cut costs. In addition those larger companies won't have to deal with harassment/sexual assault lawsuits like Uber, where drivers harass/assault customers (Hawkins). And trucking companies won't have to deal with the dangers of their field which claims over 10,000 lives per year (Transportation Fatalities by Mode). Overall I believe that the corporations, drivers and customers are the most impacted by this potential change. For the drivers this is generally a bad impact and for customer/average citizen and the corporations this is generally a good impact. Overall impact is mixed and unclear due to this contrast.

The second instance of AI application is the music industry. Specifically, AI used to generate or aid in the generation of music creation. This would range to include music generated purely by AI, systems that generated inspiration for humans, auto generated drum or basslines to finished songs, AI augmentations that humans would refire/layer over, lyric generators based on training data. This is a case of both AI augmentation and AI replacing jobs.

In terms of the impact of the workforce, many have leveraged this as a new tool to aid in the composing process. As mentioned before using AI to gain inspiration or beat writer's block is common (Dredge). A specific example is the hit song Not Easy, featuring Elle King, Sam Harris and Wiz Khalifa, which reached number 4 on iTunes Hot Track chart (Marr). The song was inspired by AI in that Watson BEAT was used to generate different musical elements until one was generated that inspired the song (Marr). Another, example is the Amadeus Codes program with the pitch: "Get unstuck with your songwriting with the power of artificial intelligence and say goodbye to writer's block for good." Another common use is to leverage AI to combat a lack of understanding for music theory like with the case of Taryn Southern, an artist who "originally turned to AI because even though she was a songwriter, she

knew ‘very, very little about music theory’” (Deahl). Finally the other outcome is to use it to help generate drum or baselines to finished songs when composers. A specific example would be Popgun a service that “it could compose and play piano, bass, and drums together as a backing track for a human’s vocals” (Dredge).

Another popular use case is to create background music for content creators. With the popularity of youtube there is a large demand for cheap flavorful background music without the potential legal issues involved with copyrighted music or royalties. Services have been created to fill this demand like Jukedeck where “Downloading your track and using it on a royalty-free basis costs 99 cents if you’re an individual or a small business, but it’s free if you give credit to Jukedeck” (Dredge). AI fills this in a meaningful way by creating original content for these videos in many cases. This is hard to compete with if you are a small time freelance musical writer looking to compose for many small projects. It’s important to note that in the future as AI composition matures AI could write higher levels of music potentially displacing many major artists. Personally I think this is unlikely for a variety of reasons. Namely the complexity of music, to the desire for drama and celebrity gossip, to live performances, a human connect with an artist and the meaning/explanation behind a song all of which would be non-existent with an AI. That being said it is more than possible I am wrong, only time will tell.

In terms of the impact I think content creators and composers are impacted the most. Content creators are impacted positively via the opportunity for cheap non-copyrighted music. Composers are impacted positively in that they are given a new tool and negatively in that some of their jobs are stolen by AI composition. I think the overall impact is unclear/positive due to the mix of positive and negative impacts described above.

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