EN111 Final Argumentative Essay Rating Scale: [redacted]

Your Score	Points Possible	
Ongoing Debate: 10 points		
9	10-8	Includes brief history of the issue that incorporates what "They say." Main points from a variety of viewpoints are introduced. Creative/original insights; goes beyond obvious and basic commentary.
	7-0	History of the issue is incomplete and/or missing. Summaries lack details, are inaccurate, and/or do not reflect a variety of viewpoints.
"I say" (Thesis and Argument): 25 points		
24	25-22	Clear thesis that presents an argument. Main points are introduced clearly. Creative/original ideas and insights; goes beyond obvious and basic commentary. Reasons are supported by evidence. Presents a logical argument. "So What? Who Cares?" factor is addressed well.
	21-17	Thesis is somewhat clear and argument is somewhat supported with concrete evidence and commentary. Ideas may be obvious or basic. Mostly logical argument. Mentions "So What? Who Cares?" factor.
	16-0	No thesis evident or thesis not justified by the rest of essay. Thesis is not argumentative; it is fact or summary. Ideas/evidence not well explained. Evidence not used to connect to the argument in the essay. "So What? Who Cares?" is unclear.
"Naysayers" (Opposing Views): 10 points		
10	10-8	Most relevant alternative views are acknowledged and effectively addressed.
	7-0	Ineffective in acknowledging and/or addressing the opposing views.
Structure and Organization: 10 points		
9	10-8	Introduction grabs attention and provides appropriate background information. Conclusion restates arguments in new language and connects ideas to the big picture. Creative title. Good organization including appropriate transitions. Essay is coherent and unified. Paper is about 7-9 pages in length
	7-0	Introduction does not introduce required information. Doesn't fit the essay's argument. Conclusion does not restate main ideas/thesis, or it does not fit with the argument. No title. Problems with organization and/or transitions. Essay is confusing and/or not unified. Paper is too short or too long.

Research and Documentation: 25 pts.		
24	25-22	Excellent evidence is used to support argument. Adequate amount and effective integration of research (minimum of 5 credible sources including 1 scholarly source). Sources are properly acknowledged with in-text citations and are identified on a works cited page using the MLA format. Contains no plagiarism.
	21-17	Some evidence provided from a variety of sources. Sources are not always appropriately acknowledged using MLA format. May not include 1 scholarly source. May not include 5 credible sources. May contain some unintentional plagiarism.
	16-0	Insufficient research and/or overreliance on sources. Missing scholarly sources. Problems with formatting of parenthetical citations, works cited page, and MLA/APA format. May contain unintentional plagiarism.
Style, Vocabulary, Sentence Structure 10 pts.		
10	10-8	Sophisticated vocabulary and excellent sentence variety.
	7-1	Word choices could be improved (more specific, accurate, varied, sophisticated). Problems with sentence clarity, redundancy; some vague sentences; little sentence variety.
Spelling and Grammar 10 pts.		
9	10-8	Very few problems with grammar, punctuation, capitalization, and spelling.
	7-0	Problems with grammar, spelling, and/or punctuation. Errors may interfere with understanding of the text.
95%	**Total Score**	

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EN-111 Writing for Research

Professor Tenorio

11/28/21

AI: The Next or Last Major Innovation?

Work has been a fundamental part of society since the dawn of civilization. Ever since the innovation of farming, there has been a domino effect of innovations that created more and more jobs that are still happening today. Human settlement caused the creation of art, craftsmanship, banking, infantry, construction, and every other job sector. Whenever an innovation happened, it created more unique work opportunities that greatly boost the economy that took part in it. This is all good news but, notice what was left behind after each innovation. Factories made craftsmanship, like blacksmiths and weavers, into a hobbyist instead of the necessary pillars of a community it once was. Calculators greatly reduced the need for mathematicians, making an entire field of academia null and void. Each innovation, while a net boost for the rest of society, made the entire livelihood of some people irrelevant. These innovations and displacements were only relegated to physical and repeatable work, but artificial intelligence (AI) might be different. In recent years, AI, more specifically machine learning, has been capable of completing increasingly complex tasks. So much so that many have been questioning whether AI might reach a level of sophistication so advanced that it would make humans irrelevant in the workplace. While I believe right now it is uncertain the exact degree of impact current AI will have on human relevancy in the job market, a near-future where humans are made irrelevant in the workforce won't be happening because of the inherent incapabilities of AI and because humans equipped with AI outperformed standalone AIs.

Discussions on whether AI has the potential to replace the need for human workers entirely has been around since the advent of the computer in the second half of the 20th century. Early pioneers of computing dabbled in the different capabilities of their current technology and eventually created artificial intelligence. AI and computers back then were only capable of doing simple tasks like factory work or mathematical calculations. However, these pioneers saw potential in AI and computing. While it wasn't much back then, computer scientists then and now saw that as just the beginning. As time went on, AI grew in intelligence and skill, becoming so adept that it is able to outwit some of the best high-level strategists. Most famously, IBM's Deep Blue beat chess grandmaster, Garry Kasparov, in a traditional chess match. For a more recent example, Google's AlphaGo AI beat the highest-ranked Go player in a Go game back in 2017. With current day AI beating everyone's expectations, computer scientists are expecting even more from AI. Some scientists expect a potential dystopian science fiction future to become a reality and warn people that AI should be implemented carefully or that might actually happen. While others think, at most, it will make a portion of human society irrelevant in the job space. (Anderson and Rainie)

On the contrary, some economists heavily disagree with these predictions made by computer scientists. They agree that AI will shake up society, but not replace humans in the workforce. They have no doubt that humans will stay relevant in the future as they just see the integration of artificial intelligence as another innovation. Just like the innovation of the spinning jenny, the assembly line, or the automobile, all AI will do is disrupt the section of the job market that innovation was tied to, then eventually that innovation will result in the creation of new jobs of the same skill levels to replace the old ones. However, some economists are on the fence about

this debate. The fact that AI is automated logical tasks and is growing rapidly in intelligence made some economists research whether this innovation truly is different from the previous ones. The results of their studies, sadly, weren't enough in their eyes to make anything else but educated guesses; not enough data to make accurate predictions about the future of AI in the job market. Their findings directly influenced my first claim which states that it is too early to have an exact measurement of AI's current impact on the job market.

One of these economists researching AI's close future and current abilities is Michael Webb. He is a current Ph.D. candidate in the Economics Department of Stanford University. In his study titled, "The Impact of Artificial Intelligence on the Labor Market", he wanted to answer what impact AI has or can potentially have on the labor market. He did this by finding overlaps between job descriptions in the U.S. Department of Labor's O*NET database and current copyrighted AI patents. Webb organized the data by how great the overlap between the job descriptions and AI patents was then ranked them in three distinct categories; low, medium, and high risk. Low risk being occupations that are least likely to have tasks that are able to be automated and high being at the highest chance of having automatable tasks. Surprisingly, this method resulted in the higher educated jobs showing a higher risk of being displaced and lower risk being vice versa. Strange compared to previous studies that showed that low-skill occupations were at higher risk of computerization compared to higher-skill occupations. However, to know to what extent AI is capable of displacement and when Webb is uncertain due to the lack of research. (Muro)

Previous research such as "Artificial Intelligence, Robots, and Work: Is This Time Different?" had also reached the same conclusion. The author, Stuart W. Elliott, had the same question as Webb though used a different method when trying to answer the question of AI's

potential of job displacement. He used a survey that assessed people on three main currently relevant workplace skills; literacy (the ability to understand language and instructions), numeracy (a measure of your mathematical prowess), and digital problem solving (the ability to solve technical problems). This test survey is titled PIAAC (Programme for the International Assessment of Adult Competencies). He used the PIAAC as a guide to compare the performance of the average human adult and a custom-developed AI. However, the AI was only made to solve the literacy section of the competency test. This AI was completed in about a year with a team of 11 computer scientists and cost approximately one million dollars to develop. They used state-of-the-art algorithms and machine learning techniques to train the AI to try and pass the PIAAC test as high as possible. The AI was able to pass the PIAAC with Level 2, the average capability of a human adult. Elliot's findings essentially mean that current advanced AI is capable of understanding human language as well as the average human worker. This in turn means that AI is capable of understanding the work instructions of a job as effectively as the average worker. However, like Webb, his conclusion is uncertain; claiming that there needs to be more research to truly judge AI's impact. Specifically, Elliot called out; psychologists to determine what capabilities people have in work, testing experts to survey and understand the distribution of skill across the job market, and educators to conclude what can be done to improve human proficiency. Fascinating findings if you ask me, I just wish Elliott went into more detail on how the AI operated and on who the computer scientists were or at least their credentials. (Elliott)

Despite being more than six years old, "Why Are There Still So Many Jobs? The History and Future of Workplace Automation" are still relevant to this discussion. David H. Autor, an economics professor at the Michigan Institute of Technology, researched the impacts of

computerization in the workplace and gives his insight on the relevancy of humans in an ever-computerizing world. His conclusion, after researching the current effects that AI had at the time (2015), is that AI is unable to effectively replace most of the jobs humans have due to AI's inability to overcome important flaws/ incapabilities. These incapabilities can easily be seen in skills that apply to every worker in a variety of different professions; interpersonal interaction, flexibility, adaptability, and problem-solving. Autor claims that these tasks are an essential part of being a worker and that AI has been unable to match the performance of these specific skills compared to that of the average human. (Autor 25) To specify, from what I interpret, Autor believes AI is; incapable of effective social interaction, unable to effectively take into account context when making a decision, unable to complete movements that aren't present in their hardware, and unable to solve problems that aren't present in their programming.

These inherent flaws of AI are one of the main justifications for the concept known as Human-Centered Artificial Intelligence or HCAI. This is the creation of artificial intelligence with the sole purpose of being a tool to augment human performance instead of a machine that will replace humans. In a paper titled "Can AI Make Your Job More Interesting?" written by Dan Patt and John Paschkewitz, two researchers associated with DARPA, (Defense Advanced Research Projects Agency) talked about two HCAIs developed by DARPA. Those who are unfamiliar with DARPA, are the main agency that develops the United States military weaponry and technologies, among other things. In the said paper, they mention an HCAI helicopter pilot helper named "Alias". Alias was designed to aid the main pilot and act as a sort of co-pilot whenever the main pilot needs an extra hand. Alone, Alias is incapable of completing the tasks needed to fully be considered a helicopter pilot. The main one is its inability to interpret and process mission-specific contexts and commands. However, when it comes to being able to

control the helicopter when it is crashing, Alias outperformed the pilot every time. The second DARPA developed HCAI is the AI they dubbed “Centaur”. Centaur is an AI interface designed to help chess grandmasters in chess tournaments against AI. The grandmasters on their own were no match compared to the hyper-intelligent chess bots, but with the Centaur AI’s help, the grandmasters managed to win games. With these two results in mind, Patt and Paschkewitz conclude that AI and humans should be put together to mitigate humanities and AI’s weaknesses. Whilst they never call these two AIs “human-centered AI”, this is remarkably close to the topic of it that I decided that they might as well be the same. (Paschkewitz and Patt)

While the future of this scenario isn’t easy to predict, some people still choose to pick it aside. Carl Benedikt Frey and Michael A. Osborne are Oxford researchers who side with computer scientists. In their paper titled, “The Future of Employment: How Susceptible are Jobs to Computerisation“ they believe that artificial intelligence is capable of putting 47% of American jobs at risk of computerization; meaning that AI is capable of displacing said jobs. This statistic was gathered I believe by seeing how many repeatable tasks an occupation has then ranked them by high risk and low risk of being computerized. High risk is having the most repeatable tasks and low risk is vice versa. Where the problem is, however, is that jobs with repeatable tasks don’t necessarily mean that they are at risk of being completely automated. Yes, robots can be created to do said repeatable tasks, but the task may change completely depending on the circumstance. For example, a floor cleaning bot is able of doing what any floor cleaner does, just vacuuming the floor, but it is unable to notice unique situations like distinguishing between average small trash to something valuable like a gold ring. If a bot cleaned a floor with this valuable present, it could potentially get lost forever, however, if a floor cleaner did it, it would most likely be noticed instead of being immediately cleaned up. This is just one

hypothetical and there are numerous unique situations that robots if they were to enter the workforce, would have to be programmed with. The sheer amount of differing situations for said robots to remember may be impossible to the limits of their physical memory, but who really knows. Either way, incorporating robots into the workforce only because most work is monotonous and repeatable, seems reckless.

Another argument done by Frey & Osborne is that robots are becoming increasingly more dexterous, meaning they are able to do more varying tasks meaning they are becoming more adaptable. They cite the creation of multiple commercial robots that can do complex tasks such as preparing food, mowing the lawn, and cleaning the gutters. I tried to check the citation listed, but I was unable to find the exact robot or robots they are talking about. I expected more specificity when it comes to this as the way they phrased their sentence in the conclusion made it sound like one robot is able to do all these different complex physical tasks. However, they never mentioned this one robot and instead use the plural robots in their main body that they were summarizing in their conclusion. This makes me believe that they are being slightly misleading and what they are actually citing is a collection of specialized robots to do specific tasks, not one robot that can do all of these tasks. This is a huge difference as if the former is true, then that means robots aren't getting more dexterous at all. They've been able to do singular tasks like this for years, arguably since the advent of computing. I honestly hope I misinterpreted this. I never expected nor wanted this type of wordplay in this level of academia.

In conclusion, I believe that humans will still be relevant in the workforce; now and in the near future. This is supported by AI still not being able to properly process context beyond their original programming, create the same social warmth interaction with a human being creates, and not being one hundred percent able to copy human dexterity. This is also backed by

computer scientists that are cautious of dangerous futures by making artificial intelligence that isn't made to replace humans but instead improves their work performances. Despite me not believing it before, I now see AI as being another innovation of humanity that will act as a tool to allow us to achieve even more economic prosperities. However, this is only for now. The future is still uncertain and I see potential outcomes like big tech creating robots to pass these barriers is still a possibility. This is mainly due to their vast amount of wealth compared to the rest of the population. With that amount, they are capable of achieving anything they feel like.

I hope more research will be done on this topic in the future; hopefully by more computer scientists. Osborne was the only one who was a computer major that researched this specific topic. The rest of the studies I've found were by economists, even his coauthor Frey. I feel as if more data collection/ interpretation from computer scientists can provide more variety in the outcome of this research.

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