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ENC 1102

8 November 2022

NLP's Impact on the Future of Creative Careers: Don't Underestimate the Power of AI

Introduction

The study of natural language processing, or NLP for short, has been going on for decades, starting in the 1950s. NLP, "...is broadly defined as the automatic manipulation of natural language, like speech and text, by software" (Canuma). NLP most frequently involves speech recognition, natural language understanding, and natural language generation.

Over the past decade, NLP has been taken over by deep learning, which is a much more advanced form of artificial intelligence (AI) that involves artificial neural networks. Artificial neural networks exhibit an impressive amount of intelligence that mimics human intelligence. Supercharging NLP with the immense power of deeping learning resulted in some very impressive AI models, known as large language models (LLMs). These LLMs are doing crazy things today such as producing large sequences of mostly coherent text (Dickson), producing images based on a prompt it understood, and even writing code that performs exactly the task you described to it! With these amazing feats however come big concerns about how NLP will interfere with many jobs. I will be addressing these concerns by attempting to answer these questions:

- Should AI generated art be recognized as real art?

- Should AI art be recognized and win art contests over human artists?

- Will the developers who use these AIs be recognized as artists?

- Will AI text generation tools such as copy.ai take over marketing jobs?

- Do you think AI text generation tools like copy.ai will become more of an asset to people in marketing jobs rather than take over those jobs?

- Is there more to marketing jobs than what AI can do?

- Will this be the start of careers like prompt engineers, whose job is to know how to craft the perfect prompt to get exactly what you want from an AI?

- Will people in marketing jobs shift to being prompt engineers?

And the most important overall question: What is the impact of NLP on (the future of) creative careers?

Background

To properly answer these questions, we need to look at where these concerns come from. About 2 months ago, an art piece generated by an image AI won a fine arts competition, which stirred up lots of controversy. People were saying that the person who used the AI to create this art isn't a real artist, because he didn't create anything besides coming up with a prompt for the AI to use to generate the art, so that doesn't make him an artist. This also sparked lots of concern for artists because the work of a machine had just won a contest over the work of humans (Teoh). What does this mean for artists whose income comes from their art, if regular people could just generate the same thing with a simple sentence.

Another incident that more directly shows the fear of AI replacing jobs is when a popular TikTok user @curt.skelton "revealed" in a video that he's actually just an AI-generated avatar. The video quickly went viral, as the "avatar" was incredibly convincing, but the TikTok creator ended up revealing he is in fact real and not just an avatar. In the process of this video though, he ended up worrying many many artists that were incredibly scared at the thought of an AI that could put them out of work (Teoh).

This is a very real concern that begs the discussion whether this should be allowed, or at least how we should approach or govern this new technology so that it doesn't interfere with humans' careers. This is the answer I'm going to try finding, or at least work towards.

Research Methods

In order to understand the true extent of NLP's impact, I first conducted survey research to see a general public opinion on how drastic will NLP's effect really be. The advantage of surveys is it allows me to obtain opinions from a lot more people than I would obtain from methods such as interviewing, but the tradeoff is that the opinions are less valuable or credible than more direct methods of research. To combat that, I also conducted interviews with people working in the field and students in these specific fields that AI endangers to get a much more detailed and credible opinion on the matter. To tie it all together, I analyzed online text for information I could supplement my own research with.

I started off the survey by asking respondents if they were involved in any of these fields: art/content creation, computer science/AI, or marketing/advertising. This would help give me an idea of what background knowledge the respondent has that would make their answers more

credible, or on the other hand to see what bias they may have from their field. These were the questions I asked (shortened for clarity):

- Are you aware of the existence of image generation AIs?

- Have you used any image generation AIs yourself?

- Should AI generated art be recognized as real art?

- Should art generated using an AI win award shows over art made by humans?

- Should people who generate art using AI be recognized as artists?

- If AI art can't exist on its own, will they at least serve as tools?

- Are you aware of the existence of text generation AIs that can generate emails, marketing plans, letters, etc. based on information you give it?

- Do you think text generation AIs will take over marketing jobs, or only serve as tools?

And at the end, I included a free response text box where respondents could provide more specific opinions or elaborate on the answers they provided.

For my interview research, I interviewed my cousin, Samer Najjar, who is a Security Software Engineer for the worldwide employment website, Indeed. Talking to him provided a very credible opinion rooted in lots of experience in computer science and AI. I curated a list of questions that sparked lots of very rich discussion on the future of AI and its effects. The questions were as follows:

1. "Do you think tools like copy.ai could replace humans in marketing jobs?", with an added counter question that I will mention later that sparked a great further explanation.

2. "Do you think AI generated art, such as from Dall-E, should be recognized as real art?"

3. "Should people who create art with AI be considered artists, and recognized for their art?"

4. "Do you think AI will likely replace creative careers? Or mostly help people in these careers and be a useful tool for their work?"

5. "Many AI engines such as GitHub copilot, are trained on human data. This implies the human generated code is a superset of the AI's capabilities. Given that the AI would be a subset of the human role, do you think there is any way AI could replace the human role?"

Results

The results I found throughout my research were all very interesting, so much so that I wish I started much earlier so that I could survey many many more people, as I really enjoyed seeing people's thoughts on this topic. I will keep this section strictly for results only, and then provide my analysis and opinion on all of this in the next section.

Based on my textual analysis, the response is mixed on whether AI will interfere with the future of creative careers. According to OpenAI, the creators of Dall-E, they state very surely that the answer is no. They explain that Dall-E is simply a tool that extends and assists in the creative process, the same way an artist would look at different artworks for inspiration to enhance their work (Goldman). The problem with this, I believe, is that it depends on the

integrity of the artist, because what's stopping the user from just generating some piece of art using the AI and then presenting it as their own? Especially when you can't trace back the image to the AI, since it was based on a prompt that is just some concatenation of words that only the user knows. Independent of the possibility of dishonesty, users could still generate artwork that they use to outperform art created by humans. Let's take a look at the Colorado State Fair, where an artwork made using AI came in first at the competition. The piece was made using the programs Midjourney and enhanced with AI Gigapixel, and after going through 100s of images and fine tuning over many weeks, the artist picked their top 3 (Teoh). This piece is an example of art that used AI as the main creator and not just as a tool like OpenAI claimed it would be used. It sparked lots of worry as artists were worrying about, "...the fact that AI could take away jobs from real artists or people in the creative fields is so scary. This infuriates [them]" (Teoh).

Looking outside of simply just AI art, I found some interesting points about NLP as a whole. While we are worried about the possibility of NLP AIs replacing us, there's numerous sources outlining a major problem with NLP that shows that it still has a long way before it takes over. Although large language models (LLMs) can perform wonderful feats, countless experiments show that LLMs are just parroting their training data. The impressive results they show are a result of being exposed to huge amounts of human generated text (Dickson). This is an important problem because if many NLPs are being shown to just regurgitate the data that we feed it, then it cannot replace our jobs, as the AI is relying on the content we produce, not producing something better on its own.

Looking at my survey research, it was really interesting to see the public opinion on this topic and being somewhat surprised by some of the responses. For the background of the respondents, I provided a checkbox list of responses asking about the fields the respondent was

involved in. The options were computer science/AI, artist, and marketing/advertising. The respondents weren't required to provide an answer, they were to answer only if they had any connection to the provided fields. Additionally, since it was a checkbox style question, the same people were able to check off multiple fields. With that in mind, here are the numbers. Out of 27 people who answered this question: 8 responded marketing, 10 responded computer science, and 14 responded artist. This shows a good variety of backgrounds for each field. The first important question was, "should AI generated art be recognized as real art?", and the options I provided were: yes, no, and "depends on your definition of real art". About 40% answered yes, which was a bit surprising, as I felt like most people would instantly say no. Close behind, about 35% of people answered that it depends on the definition of real art, which makes sense. Then the remaining 25% answered no. On the following question though, the response matched what was expected. When asked, "should AI generated art win award shows over art made by humans?" 87% of respondents answered no, while only 4 people answered yes. The next question is an interesting topic whose answer can really vary. When asked, "should people who generate art using AI be recognized as artists?", 25% answered yes, 35% answered no, and 40% answered mixed opinion/maybe. The majority of answers being "maybe" makes a lot of sense, because the definition of an artist could really vary among people, or maybe there are different types of artists. Shifting away from art AIs, we have questions about text generation AIs. 60% of respondents were aware of the existence of text generation AIs such as copy.ai that can generate complete emails, marketing plans, letters, etc. When asked if they believe text generation AIs will take over marketing jobs at some point or only serve as tools, the majority of respondents at 56% answered that they will only be tools. 28% answered that they will replace marketing positions, and 16% didn't understand enough to formulate a solid opinion. The end of the survey

was the most interesting, as these were the free responses where people were able to type out more complete answers. I will summarize the ideas of the most interesting and informational responses. One of the answers said that AI would never be as good as real people, as they can't feel emotion or perceive the way people feel. Because of that, AI can't replace people in marketing as they're unable to target people the way humans would be able to target their emotions. They can serve as tools to create templates or slogans, otherwise, "...it takes a human to understand how to create something to appeal to the audience". I know that I said I was going to save my thoughts for the discussion section, but what constantly comes to mind as I'm reading through all the results is, people severely underestimate the power of AI. Another response said something similar about marketing, explaining that it will always require people as it takes human opinion and background knowledge to understand if some campaign works well for a target audience. The same response said that AI art can be considered art if it is incorporated as a medium, but it is definitely not as complex as hand painting realism, so it should be considered art in a different category. Another response about AI art said that determining whether someone generating art with AI is an "artist" depends on what kind of effort went into the art. "If it's just a one sentence prompt, then they're probably not an artist. If they designed the code a certain way OR carefully specified many parameters to reach a desired artwork, then yes they are acting more like an artist." I really like this response because they relate the effort put into the code to the work of the artist.

My last form of research was the interview, which I considerably enjoyed. I feel like this interview provided very accurate opinions about the future of AI and was very eye opening, which is what made it so enjoyable. I will only be quoting from and paraphrasing the responses from the interview with Samer Najjar, but I've provided the full responses in the appendix for

reference. I started off by asking him whether he thinks tools like copy.ai could replace humans in marketing positions. He replied saying that although it may not happen soon, it will happen. Because AI is already very sophisticated and given that it's already taken a role in marketing, it's not impossible that it will one day completely assume the role of a marketer. Now I wasn't satisfied with this answer, as I believed that since the AI needs to be prompted with information to turn into some kind of marketing text, marketers will stay relevant as they would be the ones producing the initial ideas that are fed into the AI. But Najjar quickly shut down that counter idea, explaining that, "it's shortsighted to believe that AI can't reach a point where it does not need constant supervision", and it could easily be directed by the people who would normally work with the marketers and tell them what they need. This was also a strong reminder for me, someone experienced in computer science, to not underestimate AI and to eliminate any naive assumptions. Next I asked him if he thought AI generated art should be recognized as real art. His answer was very interesting, as I originally thought this would mostly be a clear no, but he changed my mind. I'm including the whole quote because essential details would be missed if I paraphrased, "when you look at AI generated art you would feel the same emotions as if you were looking at art made by a human, so phenomenologically they are equal. That's what art is about, art is meant to inspire strong emotion. Moreover, we should not limit our definition of art. When an engineer writes the highly sophisticated code that makes an art AI, this in and of itself is a work of art." It makes sense now to consider AI generated art as real art, because although it may not be art the same way other mediums are art, it's still in its own way a work of art. On the other hand, when I asked him if people who create art with AI should be considered artists, he said no. His reason was explained well with a metaphor, saying that people who generate art using AI aren't doing what an artist does and is more akin to asking a sketch artist to draw some

picture in a certain style. "They are prompting the creation of art but they are not employing their own creativity, at least not in an artistic sense". I then focused more generally on the topic. I asked Najjar if he thought that AI will likely replace creative careers, or mostly serve as a tool for their work. He answered with certainty that AI won't replace creative careers because, "creating art is the human way." This I completely agree with because without human creativity, we wouldn't care about art alone, "...and AI can never supplant this human urge." Before we ended the interview, a final question came to mind that was a perfect way to end off. These massive AIs that are producing such impressive results are all trained on copious amounts of data largely coming from humans. I used GitHub copilot as an example in my question, which is an AI that can write code and was trained on billions of lines of code written by humans. This implies the human generated code is a superset of the AI's capabilities. Given that the AI would be a subset of the human role, I asked Najjar if he thinks there is any way AI could replace the human role? He acknowledged that this could be difficult to navigate, as this is a common concern in the community, but he continued saying that as he mentioned before, this is just the beginning of AI. "...like an infant that learns from its parents, AI will eventually learn the ability to create original information rather than regurgitate old information," reiterating a very important point that we are still in the beginning of the development of an impressive technology that still has a long time to unfold.

Discussion and Conclusions

Now that we're finally through all the results, we can properly discuss them and draw interesting conclusions. Based on my research and what I've seen, I feel like the overall conclusion is that AI will have quite a big impact on a lot of jobs, but we shouldn't worry too much. Starting more specifically with art AIs, I believe they will integrate very well into our

society and not be as "invasive" as some may think. By invasive, I mean that many think that art AIs will interfere a lot with artists and will shadow their work by being chosen over them in jobs, or like in the Colorado State Fair example mentioned earlier when the AI generated art piece won first in the competition. I believe that these are problems that should resolve over time, as art generating AIs are new and simply not properly integrated into society yet. What I mean by that is we're still in the initial shock period where people are still getting used to this technology and how it will be normally used day to day. Looking back at the Colorado State Fair example, this may be a problem now but I believe this is something that will be dealt with, maybe a new category will be added for specifically AI generated art. As Samer Najjar said in my interview, "art is not just a necessary task that we need to check off our checklist, but rather it is a part of being human and AI can never supplant this human urge". I especially think that art AIs are extremely good tools, because they allow for the quick generation of images from simple ideas. Think of the massive plethora of ways that could be used. For enterprise clients, it can be a vehicle to turn ideas into concepts and refine those concepts very quickly and easily. Then for artists and marketers, they can use it to build out their initial ideas and very easily create variations (Goldman). While I was working on this paper at a Kava bar, someone overheard me talking about the controversy of art AIs and provided me with his experience with them. The person I talked to would use art generating AIs to make his own assets, different components of a larger image. For example, he generated a skull wearing headphones then some other basic images, and he would combine them to bring an original composition to life. I really loved this, as he used the work of an art AI in his final piece, yet he still employed the creativity of an artist. The possibilities are endless, and there is undeniable advantage to a tool that can easily turn your ideas into tangible results. This is also consistent with my survey data, where over 90% of

respondents agreed that art AIs serve as perfect tools. Now no matter how art AIs are used, there is still one concern that persists and that is that some of these AIs are in a way copying many humans' work. Greg Rutkowski is a perfect example of an artist who is a victim of this problem. Rutkowski discovered many art pieces in his style that he had no hand in making. According to MIT's technology review, Rutkowski's name ranks among the most used prompts on two popular open-access art AIs, where users have used his name 93,000 times (Benzine). This can be a big problem, as Rutkowski's work can be wrongly imitated without credit. But again we are reminded by a common theme, this is still the beginning of this massive technology, these problems are surfacing for the first time ever and we simply have to advocate for these problems to be solved. Najjar's opinion also aligns with this, as he repeated many times throughout the interview that, "this is barely the tip of the iceberg and AI's already this sophisticated, so imagine what more we have to unravel," and more specifically, "AI will eventually learn the ability to create original information rather than regurgitate old information." Soon enough, AI will simply learn from the work of people such as Rutkowski and eventually be generating completely original artwork.

That point is a perfect place to segue into text generation AIs, where our predictions aren't as optimistic. As AI develops, problems with art AIs will hopefully resolve, but the threats that text generation AIs pose may grow. AI already has a big role in marketing, it's used to target audiences and see what they would buy (Newton), and unlike art, the purpose of marketing is to sell a product, not to exercise creativity. When I asked Najjar about his opinion on this, he answered, "although it won't happen very soon, eventually whether it's in 20 years or 80 years, it will happen. …it doesn't seem beyond the realm of possibilities that AI will completely assume the role of a marketer." What's interesting is when you ask people with a background in

computer science who understand more about the strength of AI, they all recognize the possible threat of AI, and this is reflected in the results of my survey. When you ask people in marketing on the other hand, they all like to deny that AI can possibly assume their role in the future. As one respondent to my survey puts it, "it takes a human to understand how to create something to appeal to the audience", and another respondent said, "...perfectly generated text is helpful but it takes human opinion and background knowledge to understand if it's working well for a target audience." The numbers disagree with the respondents' answers, as 61% of marketers say artificial intelligence is the most important aspect of their data strategy (O'Neill). Now the idea of AI completely assuming the role of marketers is still theoretical, but it doesn't mean we shouldn't be cautious. Because as Najjar puts it, "...we are already seeing things [from AI] that can only be described as magic that we wouldn't have dreamed of 50 years ago".

   While my observations and claims are merely predictions of a far future, they do provide people with an important look into a massive technology that is rapidly growing into many industries. AI is undoubtedly huge in this day and age, everyone knows about it and its impact, but it's important that people specifically understand how big it really is and how much bigger it can get. The most important thing I want everyone to take away from this is: don't underestimate the power of AI.

Works Cited

Benzine, Vittoria. "'A.I. Should Exclude Living Artists from Its Database,' Says One Painter

    Whose Works Were Used to Fuel Image Generators." Artnet News, 20 Sept. 2022,

    https://news.artnet.com/art-world/a-i-should-exclude-living-artists-from-its-database-says

    -one-painter-whose-works-were-used-to-fuel-image-generators-2178352.

Canuma, Prince. "The Brief History of NLP." Medium, DataDrivenInvestor, 16 Sept. 2019,

    https://medium.datadriveninvestor.com/the-brief-history-of-nlp-c90f331b6ad7.

ClickThrough Marketing. "How Will the Rise of Artificial Intelligence Change Marketing?" The

    Drum, ClickThrough Marketing, 13 Apr. 2021,

    https://www.thedrum.com/profile/clickthrough-marketing/news/how-will-the-rise-of-artif

    icial-intelligence-change-marketing.

Dickson, Ben. "Large Language Models Might Reason-If You Know How to Speak to Them."

    TechTalks, 11 July 2022,

    https://bdtechtalks.com/2022/07/11/large-language-models-zero-shot-reasoning/.

Goldman, Sharon. "Will OpenAI's DALL-E 2 Kill Creative Careers?" VentureBeat, VentureBeat,

    26 July 2022, https://venturebeat.com/ai/openai-will-dall-e-2-kill-creative-careers/.

O'Neill, Sarah. "AI and ML in B2B: Stats and Trends for 2022." Keep Upgrading - Skills.

    Knowledge. Network., 2021,

    https://www.lxahub.com/stories/ai-and-ml-in-b2b-stats-and-trends-for-2022.

Teoh, Belinda. "Art Made by AI Wins Fine Arts Competition." Impakter, 13 Sept. 2022,

    https://impakter.com/art-made-by-ai-wins-fine-arts-competition/.

Appendix

1. "Although it won't happen very soon, eventually whether it's in 20 years or 80 years, it will happen. Because AI is already very sophisticated and we are already seeing things that can only be described as magic that we wouldn't have dreamed of 50 years ago like AI generated art. Given that AI has already taken a role in marketing, it doesn't seem beyond the realm of possibilities that AI will completely assume the role of a marketer.

   a. I countered with: "These text generation AIs are usually controlled by someone who produces the initial ideas that the AI uses to generate marketing texts. So wouldn't that prevent AI from completely assuming the role of the marketer? Since the marketer is needed to produce the initial ideas and direct the AI".

   b. His response to that was: "My answer is that I think it's shortsighted to believe that AI can't reach a point where it does not need constant supervision. AI still has a lot of time to get even better and likely be able to develop these ideas on its own one day, directed only by the people who would normally prompt the marketer to create their marketing text."

2. "When you look at AI generated art you would feel the same emotions as if you were looking at art made by a human, so phenomenologically they are equal. That's what art is about, art is meant to inspire strong emotion. Moreover, we should not limit our definition of art. When an engineer writes the highly sophisticated code that makes an art AI, this in and of itself is a work of art."

3. "No, because they are not doing the work that an artist does. What they're doing is akin to asking a sketch artist, 'hey, can you draw a cartoon portrait of me surfing in the

Bahamas?'. They are prompting the creation of art but they are not employing their own creativity, at least not in an artistic sense."

4. "I definitely don't think AI will replace creative careers, because creating art is the human way, we will always have people who enjoy creating art. Art is not just a necessary task that we need to check off our checklist, but rather it is a part of being human and AI can never supplant this human urge."

5. "It's a good point that may be difficult to navigate, but I think it's possible AI could replace the human role because like an infant that learns from its parents, AI will eventually learn the ability to create original information rather than regurgitate old information. This is barely the tip of the iceberg and AI's already this sophisticated, so imagine what more we have to unravel."