

Redefining What Defines Humanity

Technological advancements through computers continue to break the expected boundaries of what technology is capable of. Creating art is something we consider unique to organisms, especially humans, as it is a form of self-expression. The Duke Data Science team has written an algorithm that can write its own sonnets, which is a form of poetry.

The program works by first selecting the last word of each line of the sonnet, which has fourteen lines. Each line rhymes with one other line of the poem, in a specific order. After it generates these words, it works backwards to generate the rest of the sentence (Guo). For example, for the first line of the poem, it may generate the rhyming word “blueberry”, and for the third line “cherry”. Then, it will generate the second to last word for each sentence, which must follow the appropriate syllable structure of the sonnet. It continues doing this until it has reached the appropriate amount of syllables.

What separated the Duke team’s algorithm from others is that they incorporated multiple new features that would make the poems follow modern grammatical etiquette. For example, the program checks that no two pronouns are adjacent to each other (i.e. “she he”) (Guo). They did this by using the tags from Python’s Natural Language Toolkit (Benhart 2). Machine learning was also used to develop the capabilities of the program by giving the program renowned written works which exemplify the grammatical technique, vocabulary, and rhythm they were looking for.

A massive obstacle that the Duke team (and many other programmers) faced was getting the program to create poetry that actually made sense in English. The computers do not have any understanding of what the words they are outputting actually mean (Guo). While this implies that the program cannot yet generate poems that actually mean anything, it does mean that it would be easy to teach the program how to write sonnets in any other language. Also, unlike humans, it consistently creates poetry that always follows the correct rhythm and meter at an extremely fast rate.

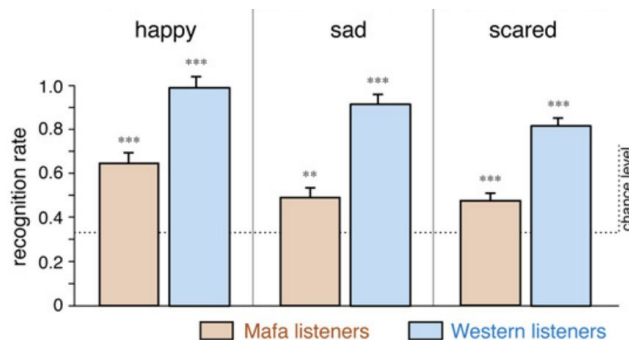
First, programs were created to assist artists create art. Then, programs were made that can create their own pieces of art with very limited intelligence. The next step is coming in the near future: intelligent programs will be able to generate pieces of art, like sonnets, that have an actual meaning. The only significant obstacle left is to find a way to combine the algorithms that can understand the human language to the ones that create art. In fact, this step is already in progress. The first artwork to ever be created by AI sold in 2018 for over \$400,000, which highlights the value people place in the overlap between machinery and self-expression through art (Jones). Paintings and sonnets are just the beginning; soon, computers will expand to self-expression in many other forms, like music.

My personal reaction to this is amazement. I have been creating music my entire life through the drum set and see the creation of music as a way for humans pour their emotion into a group of sounds, which triggers similar emotions in other listeners. The same applies for all other art forms (e.g. paintings, literature, and film). The first question that came to mind when I read that computers could create art was: can computers create art that triggers emotion in humans? Or will it all be nonsense?

Through my personal experiences, I believe there are patterns in music that the computers will be able to learn themselves through machine learning. For example, Ed Sheeran found that most modern songs are based on four chords. Using these four chords, a machine could theoretically produce many songs similar to the modern music we listen to, which would trigger emotions in us humans.

It is interesting to ponder upon the consequences of machines producing good music in the music industry. One could argue that music artists would become less important and eventually fade away from popular culture, replaced by these machines' music. However, I would argue that the personal aspect of music is extremely important; listeners enjoy following artists' personalities and going to concerts like Coachella to see their favorite artists in person. It is much more difficult to feel a connection like this with a machine music artist.

Furthermore, if machines do gain these abilities, they will be able to broaden humans' understanding of how art works and the applications of it. Our understanding of the functionality of the brain is limited, especially in connection with music. For example, some facets of music perception, like happiness, sadness, and fear, are universal to people of all cultures, while others are "developed only after exposure to a specific musical culture" (Fritz 573). The following graph compares the reactions to music of a secluded African population (known as Mafa) with Western people. We can see that both were able to recognize different emotions of music, but nearly all Westerners were able to do so. The machine may be able to tell us which sounds are universal, and which ones are developed through culture.



Every week, new algorithms are being generated that further our understanding and broaden our perspective of the world around us. Computers are becoming the

most significant apparatus used by humans to learn about everything around us and use that knowledge to improve our world and our own lives, whether that is through self-driving cars or through funny sonnets.

Works Cited

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