AI in Daily Life

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Introduction

AI has become a significant part of daily life from items like Alexa, GPS, self-driving cars, as well as its applications in entertainment, business, the medical field and robotics. AI can improve daily life by increasing efficiency and eliminating repetitive tasks, allowing for humans to concentrate on more complex tasks. AI can process input at much faster speeds than humans can. AI can also decrease risk in dangerous jobs such as bomb defusing by utilizing robotics. This research project analyses the use of AI in daily life, and a Python application was created to explore how AI impacts the hiring process.

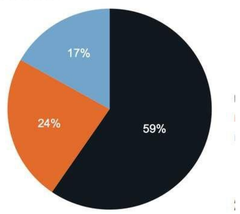

Figure 1: Pie Chart showing percentage of people who accept impact of AI in their lives.

https://www.researchgate.net/figure/Chart-showing-the-percentage-of-people-embracing-AI-Source_fig2_321348028

Entertainment

AI and entertainment have become more intertwined in recent years. Qualitative spatial reasoning is a technique used in AI; in the case of entertainment, it is used in video games:

- To make encounters more immersive and believable
- To distinguish different types of in-game terrain and allow characters to respond accordingly (Forbus, 2002)

AI is also used to allow computers to better understand human intent.

Another way AI is used in entertainment is to recommend systems for streaming services such as Netflix. Different types of AI are used in different parts of Netflix's main menu. For example:

- Netflix uses AI to select what content the user is most likely to interact with next (Steck, 2021)

Another interesting use of AI entertainment is AI art.

- Art is a very subjective and creative process, but it has amazingly been created using AI to interesting effects (Zylinska, 2020)

One of the most important uses of AI in entertainment is the use of AI to make entertainment more accessible to those with disabilities

- It is being used to automatically create subtitles on videos. While by itself the subtitles are not entirely accurate, they provide a good start for those that create subtitles, and can make the process of writing subtitles much faster and easier (Soe, 2021)

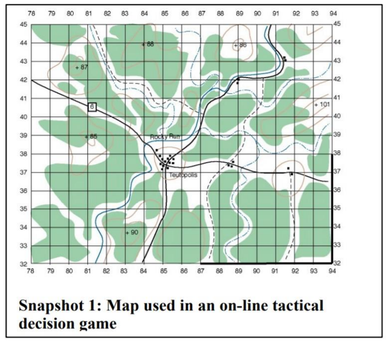

Figure 2: Map of a tactical game

https://www.aaai.org/Papers/Symposia/Spring/2001/SS-01-02/SS01-02-008.pdf

Figure 3: AI-generated portrait of Van Gogh using wombo.art

Business

It is important that businesses adapt their practices to maximize the potential positives of artificial intelligence, while providing accountability for its shortcomings. AI can achieve 90% accuracy while providing 24/7 service in call center role, as well as process large data sets, thus increasing efficiency. (Tarafdar, 2019) However, it is also used in applications that have deep impacts on peoples' lives. While it is difficult to explain how artificial intelligence works, there should be some accountability when it affects people's lives. (Monroe, 2019)

```
model1 = tf.keras.Sequential()
model1.add(tf.keras.layers.Embedding(max_features + 1, 32))
model1.add(tf.keras.layers.Dropout(0.2))
model1.add(tf.keras.layers.GlobalAveragePooling1D())
model1.add(tf.keras.layers.Dropout(0.2))
model1.add(tf.keras.layers.Dense(1))

model1.compile(loss=tf.keras.losses.BinaryCrossentropy(from_logits=True),
               optimizer='adam',
               metrics=tf.metrics.BinaryAccuracy(threshold=0.0)
              )
```

Figure 4 : Model construction for resume reading application

A simple resume processing program was created to determine if resumes were for a computer science career or not. This was done by using the embedding and dropout layers from the Keras API for Python. Actual analysis of each test resume shows that the program is much better at identifying resumes to reject than accept, as the difference between the expected outcome and mean reject probability was 20.59%, but the difference for accepted resumes was 47.90%. The high accuracy is likely a product of the small and unbalanced data set, as the accuracy for rejects was 100%, while the accuracy for accepts was 66.67%.

Clinical

The purpose of AI in the clinical setting is to support clinicians in the early detection and diagnosis of medical conditions, thus, increasing quality and efficiency in the medical field. In 2018, the FDA permitted marketing of an AI medical device for the first time, known as the IDx-DR. Devices such as the IDx-DR are particularly important for general physicians because of their lack of specialized knowledge. These devices allow for the physicians to detect a medical condition early, allowing for proper referral to a specialist (Holm, 2022).

Challenges with AI in a clinical setting:

- A significant challenge with AI in a clinical setting is the "black box" nature of these systems. There is no explanation as to how they work that clinicians can understand, thus making it difficult for clinicians to find value (Holm, 2022)
- Another challenge with AI in a clinical setting is the complexity of ethics
- Beneficence vs. Autonomy

Population: 1,000	$Y = 1$ (240)	$Y = 0$ (760)	Prevalence: 24%
$D = 1$	TP: 210	FP: 80	PPV: 72%
$D = 0$	FN: 30	TN: 680	NPV: 96%
	Sensitivity: 87%	Specificity: 90%	Accuracy: 89%

Abbreviations: TP, true positives; TN, true negatives; FP, false positives; FN, false negatives; PPV, positive predictive value; NPV, negative predictive value.

Figure 5: Contingency Table/ Confusion Matrix

https://doi-org.proxy.library.kent.edu/10.1111/bioe.12930

Conclusion

Artificial Intelligence affects various aspects of life. AI is used in entertainment to better tune content towards individuals and to increase accessibility for people with disabilities. In business, AI is used to handle menial tasks and process large amounts of data. It is somewhat infamous for its use, for better or worse, in hiring procedures. This was explored with the application created to process resumes. While AI in the medical field may complicate matters, there is no doubt that there are crucial benefits in assisting medical professionals in several ways. These include early detection and diagnosis of medical conditions that may save lives and improving efficiency and quality of life for patient care around the world. In all these areas, the need for accountability is apparent, as artificial intelligence has real consequences in people's lives.

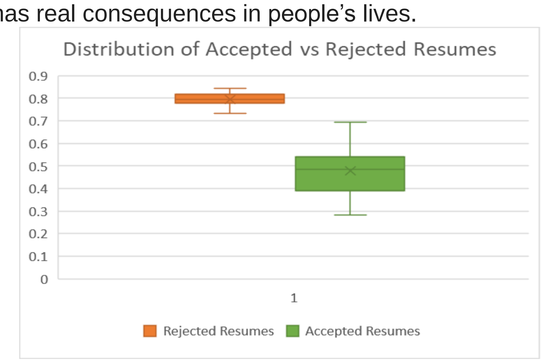

Figure 6 :Comparison of probability distributions between accepted and rejected resumes for resume application

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