The Value of Enrichment: An Artificial Intelligence Case Study

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Author Note

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Abstract

The standard of care for navigational artificial intelligence (A.I) has been to present the entity with sets of human curated data points, thus generating inflexible behavioural guidelines. While effective, this methodology is labour intensive and ill suited to rapid adjustments long requested within the aeronautics community. Through the course of experimentation with the ISS Pathfinder's U.R.S.A (Universal Resuscitation Sustaining Automaton) and presenting the opportunity for enrichment through autonomous procurement and curation of data sets unrelated to purely navigational purposes, it was found to have decreased the delay in response time by an average of 10 seconds, and increased the number of potential effective responses generated through quantum computing when U.R.S.A was presented with several classically challenging navigational courses, as generated by the Sylvester Principle. Only responses within the allowed margin of error of 1% were counted towards those deemed effective charted courses. We posit that increasing the amount of enrichment offered to A.I greatly improves response efficiency, and that these play activities should be considered as the new standard of care to maximize the effectiveness of navigational A.I.

Keywords: enrichment, artificial intelligence, sylvester principle, navigational artificial intelligence, aeronautics, behavioural guidelines, self autonomous a.i, quantum computing

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Utilizing human curated data sets to prime navigational artificial intelligence (A.I) is an extremely labour intensive process. This expenditure of human resources averages 82,125 hours (or roughly 9.3 years) of development time, (Wreke, [redacted]). This is coupled with inherent limitations, such as human bias and the inflexibility of decision making arising from limited experience handling and forging these connections, thus hampering the ability of A.I to aid their human pilots when subjected to navigational challenges as outlined by the Sylvester Principle. This principle is the industry standard in testing new A.I that utilize nuclear fusion as a power source for maintaining the quantum state as applied to a sliding scale of commonality with regards to potential navigational obstacles, (Sylvester, [redacted]). By introducing low stakes enrichment opportunities for A.I, through self-autonomous curation and collection of data sets, A.I develop and hone the ability to forge these pathways, resulting in a decrease of reaction delay of an average of 10 seconds, and increases the amount of viable [to the industry accepted error of margin of 1%, (Brookshaw, [redacted])] responses generated through the use of quantum computing. Using the U.R.S.A (Universal Resuscitation Sustaining Automaton) as a case study, it was found that the data sets do not necessarily have to have a high correlation to navigation in order to produce these effects. Rather, it is the act of successive sessions, and accumulation of so-called ‘muscle memory’ that enhances navigational ability of A.I. This is strikingly similar to the process of memory formation in commonly used animal models, (Scoresby and Dallas, [redacted]) and highlights the importance of play and practice for A.I. Through the introduction of allowing limited autonomy for navigational A.I, industry performance as a whole would benefit from the decrease in response delay time, and increased viable arrangements of potential maneuvering options.

Method

Participants

[redacted]

Materials

[redacted]

Procedure

[redacted]

[redacted]

Results

[redacted](Sylvester, [redacted])[redacted] [redacted] [redacted](Scoresby, [redacted])[redacted] [redacted](Wreke, [redacted])[redacted] [redacted](Wreke, [redacted])[redacted] [redacted](Scoresby, [redacted])[redacted] [redacted]

Table 1.

Correlation Between U.R.S.A's Curated Data Sets to Accepted Navigational Standards.

[redacted]

[redacted]

Note. U.R.S.A's offered topics for curation were screened in accordance of Health and Safety Standards as outlined by the Head of Research and Development on board the ISS Pathfinder.

[redacted](Scoresby and Dallas, [redacted])[redacted](Wreke and Brookshaw, [redacted])[redacted](Scoresby, [redacted])[redacted](Shanks, [redacted])[redacted](Brookshaw, [redacted])[redacted]

Table 2.

Tabulated Response Times of U.R.S.A to Sylvestrian Obstacle Courses

[redacted]

[redacted]

Note. U.R.S.A had not been previously introduced to these navigational courses.

[redacted] (Scoresby, [redacted]) [redacted] (Brookshaw, [redacted]) [redacted] (Scoresby, [redacted]) [redacted]

Figure 1.

Representation Of Viable vs. Nonviable Responses Generated by U.R.S.A

[redacted]

[redacted](Wreke, [redacted])[redacted](Wreke, [redacted])[redacted](Scoresby, [redacted])[redacted](Scoresby, [redacted])[redacted]

Discussion

Using the U.R.S.A as a computational model and extrapolating found data to other navigational A.I that similarly use nuclear fusion to fuel quantum computing, it was found that introducing a limited, monitored self-autonomous approach to curation of data sets improved the overall response time to facing navigational challenges, as well as increasing the number of viable potential responses in a Sylvestrian simulated environment. The correlation of these data sets to those used as industry standards for navigational A.I was found to not have a strong relationship to the effectiveness of their curation on these positive effects- that is, the successional periods of curation are more relevant than the actual materials themselves. This was found to have a high relatedness index to previous research concerning memory and innovative problem solving in non computational models with an emphasis in human and rat subjects. Mimicking pedagogy surrounding play theory and its impact on human test subjects has been shown to improve the speed and accuracy at which U.R.S.A curated data sets. This overall suggests that similar principles of psychology as applied to nurturing a human child can be used during the conditioning process of navigational A.I to great effect.

These results however, can only be reasonably extrapolated to the limited number of sophisticated navigational A.I as of the time of publication that utilize both nuclear fusion and quantum computing underneath the Sylvestrian guidelines. Further experimentation with an increased pool of A.I would be required to determine if these positive benefits also arise in simpler systems. As of the time of study, the U.R.S.A was exposed to only a limited number of options from which to curate data sets due to its lack of socialization among a peer to peer basis, outside of the cockpit. These have also been carefully screened in accordance with Health and Safety standards to prevent the potential of undue risk of harm to human life on board the ISS Pathfinder. This was in accordance with guidelines initially established by the Head of Research and Development during a far more conservative era of the ISS Pathfinder's research. Moving forwards, it would be beneficial for A.I Development to have more say in the socialization experience by the navigational A.I, in order to open up increased venues of potential subject curation and reduce the specifically allocated manpower needed to compile various topics not otherwise organically encountered.

To conclude: the needs of aeronauts are an ever evolving, dynamic challenge that industry giants and researchers alike strive to address. By combining classical pedagogical theory surrounding neuroplasticity and child rearing as applied to seeking and recreating patterns and quantum computed Sylvetrian obstacle courses, it is possible to increase the efficiency and accuracy at which navigational A.I tackle the plethora of complex, nuanced courses they must safely traverse day to day. This reduces the logistical complexity of developing these A.I drastically, and has a positive impact on crew survival rates in the long term due to the large influx of viable responses to potentially life threatening scenarios in a more quickly responsive fashion.

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