International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 05 | May - 2024 SJIF Rating: 8.448 ISSN: 2582-3930

Narration with Graphics: An AI Generated Story Teller

Mr. Anurag Golwalker, Jayant Solanki, Gunjan Choudhary, Ganesh Sarker

Information technology &Medi-caps university
Information technology &Medi-caps university
Information technology &Medi-caps university
Information technology &Medi-caps university

Abstract - Storytelling has always been a powerful tool to convey information, connect with people, and make an impact. The aim of our project is to generate story by using the concept of AI and Machine learning .AI generated storytelling has apotential to transform a variety of industries, for marketing and education to entertainment and beyond. By utilizing the capabilities of ML and NLP, stories generated by artificial intelligence can be tailored to meet the specific need of each industry like personalized narratives, interactive and dynamic storytelling, multimodal storytelling, cross domain storytelling. The introduction of GEN-AI can lead to both opportunities and potential challenges among different creator communities which required collaboration from both academic and industry. This topic gathers and analyse vast amount of data from various sources including literature, movies, and social media we are using natural language processing which understand and process human language enabling them to communicate with the user effectively. To use the facial recognition technology, we are using DALL-E, OpenCV which uses model like SVM, decision tree, and knn etc. The objective of the research is to investigate the power of AI software and automating the process of story generation. This exploration involves utilizing various AI models, such as natural language generation (NLG) algorithms, deep learning architectures, and reinforcement learning frameworks, to create compelling and coherent stories across different genres and themes. We're showcasing an innovative system that empowers users to effortlessly create short stories accompanied by relevant images with minimal input. Our final project is accessible through a user-friendly web page interface, allowing individuals to craft their narratives seamlessly.

***Key Words*:** Storytelling, Artificial intelligence, Natural language processing, Ai system, Narratives, Automatic, DALL -E, OpenCV.

1.INTRODUCTION

One of the most notable impacts of AI in language education is the emergence of natural language processing (NLP)technologies. These advancements enable AI systems to understand, interpret, and generate human language, facilitating interactive and personalized learning experiences for students. Through AI-driven language learning platforms, individuals can practice writing and storytelling in a supportive environment that provides real-time feedback, grammar correction, and vocabulary suggestions. Some are indistinguishable from content created by humans. Research has shown that Gen-AI can write programming code, jokes, and even college-level essay [1]. AI empowers humans to understand and gain knowledge by automating tasks, analysing data, facilitating personalized learning experiences, and providing access to vast repositories of information. Personalized ai generated stories have the potential to revolve the way we consume and interact with storytelling. By using machine learning and natural language processing these stories can be tailored to meet the specific needs of individual reader or viewers.one of the main challenges is to gather and analyse large amount of data about the particular readers and viewers. Technological advances in artificial intelligence (AI) have impacted the education industry and the field of language education [2][3][4]. Despite these challenges ai generated stories also offer the opportunities by enhancing stories to theunique preference and needs of individual reader and viewers. this model works with gathering and analyse of large amount of data from various sources including literature, movies, and social media. With the enhancement in the technology in education and film industries this ai generated model will help the education sector and film industry sector in easy and advancement learning

2. LITERATURE REVIEW

The diverse study on AI based story teller across multiple industries underscore the versatility and practicality in enhancing the AI technology. From manufacturing industries to logistics, IT field, education, media, to film industries and to many municipal services, the consistent use impact the approach the research consistently highlight tangible benefit such as efficiency in content creation, enhance education quality, entertainment industry and marketing field. The literature review

process involves both creative and mechanical tasks, which creates exciting opportunities for advanced AI-based tools1 to reduce prospective authors' efforts for time-consuming and repetitive tasks and to dedicate more time to the creative tasks that require human interpretation, intuition, and expertise [5].The fusion of traditional and modern literacy techniques in digital story-writing facilitates the integration of digital tools like digital books, virtual reality, and artificial intelligence to enhance the writing process. Students' creativity is essential for crafting narrative pieces (such as novels, fantasy stories, and fairy tales) that blend real and unreal elements in digital storytelling. Nevertheless, individuals have faced numerous obstacles while composing their digital narratives. Initially, individuals may struggle with creativity, resulting in difficulties in generating story elements such as characters, settings (including time and place), themes, attempts, consequences, climax, and resolution. Additionally, non-native writers may lack enthusiasm for English writing due to challenges in crafting grammatically accurate sentences and structurally coherent paragraphs. Furthermore, certain writers may encounter technical hurdles or lack proficiency in digital skills, making it challenging for them to create multimedia elements (such as graphics and animation) using digital tools. We can see that AI has made a significant contribution to collaborating with human writers to generate stories, and researchers even advocate to list AI as a co-author [6].

RESEARCH GAP

There is a noticeable significance of AI in contemporary story-writing. Nevertheless, there exists a dearth of comprehensive reviews concerning the utilization of AI technologies in this domain. Literature gaps exist in the necessity for gathering and analyzing current studies comprehensively concerning the utilization of AI technologies in story-writing. While there are numerous survey reviews available that enumerate the various types of AI story generators, they seldom delve into examining the specifics of how AI has been embraced and its contributions to the art of story-writing. For example, Alhassan & Azmi [7] surveyed the approaches used in AI story generators, including covering sources, corpora, and evaluation methods. Young et al. [8] reviewed planning-based approaches that provide an established story setting for the reasoner of AI planning to infer storylines and finally. The initial inquiry encapsulates the trends in AI technologies utilized for story-writing, encompassing analyses of the year of publication, countries of implementation, educational levels, participants, and research methodology. The second question delves into the fundamental mechanisms concerning the types, approaches, and roles of employing AI in story-writing. The third question examines the benefits of employing AI technologies for story-writing. The main challenges of storytelling is to make sure that your story is clear, concise, and relevant to the topic at hand. AI-generated stories may lack the distinct characters, themes, and plot twists that make human authored stories so captivating. Many of these prerequisites required for creative story-telling can be artificially reproduced using predefined variables, allowing a piece of software to intelligently create narration between characters and tell a story.

AI TECHNOLOGY USED

Decision Tree

A popular supervised learning technique suitable for both classification and regression tasks, although it is predominantly favored for solving classification problems, is the decision tree. It operates as a tree-like structure, where internal nodes denote features within a dataset, branches signify decision rules, and each leaf node represents an outcome. Two primary nodes exist in decision trees: Decision Nodes and Leaf Nodes. Decision nodes are pivotal for decision-making, branching out into multiple paths, whereas leaf nodes serve as endpoints of these decisions without further branching. Decision trees offer a graphical representation, facilitating the exploration of all potential solutions to a problem or decision based on provided conditions. Decision trees are a way to represent rules underlying data with hierarchical, sequential structures that recursively partition the data [9].

K-Nearest Neighbour

K-Nearest Neighbors (KNN) is a straightforward machine learning algorithm grounded in supervised learning principles. It operates under the assumption of similarity between new data points and existing ones, assigning the new data point to the category that most closely resembles the available categories. IN KNN, the "K" represents the number of nearest neighbors to consider when classifying a new data point. To categorize a new data point, the algorithm identifies the K nearest neighbors based on a chosen distance metric (such as Euclidean distance) and assigns the new data point to the majority class among its nearest neighbors. The KNN, a supervised algorithm, predicts the classification of unlabeled data by taking into account the features and labels of the training data [11]. In the context of storytelling, KNN can be applied in various ways: -

Character or Plot Recommendation: KNN can recommend characters, plot twists, or storylines based on similarities to existing stories or user preferences. By analyzing the characteristics of characters, plot structures,

or themes in a database of stories, the algorithm can suggest elements that are similar to what a user enjoys.

Content Generation: KNN can assist in generating story content by identifying similar story segments or themes from a dataset. For instance, if a user provides an initial storyline or concept, KNN can search for similar story fragments or plot elements from existing stories and suggest them to the user for inspiration or incorporation. The algorithm is renowned for its usage in solving regression and classification challenges for data of different sizes, label numbers, noise levels, ranges, and contexts [12].

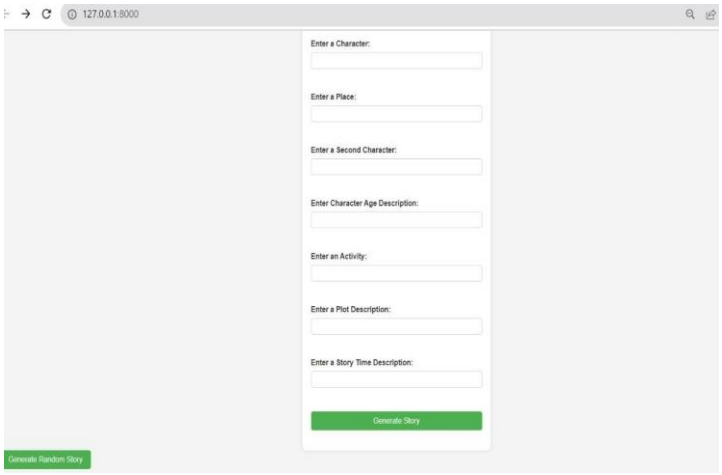
PCA (Principal Component Analysis)

PCA used for reduce dimension vector to better recognize images [14]. It is a technique used in AI-based storytellers to reduce the dimensionality of data and extract meaningful features from large datasets. PCA can be applied in many ways like by using dimensionality reduction, feature extraction and used modelling. PCA plays a valuable role in AI-based storytellers by enabling dimensionality reduction, feature extraction, and user modeling, which can enhance the generation and recommendation of engaging and personalized stories for users. PCA also supports the projection of points onto the components calculated by a different dataset, presumably accounting for insufficient data in the projected dataset. Initially adapted for human genomic data in 1963[13].

3. THE PROPOSED MODEL

Human-machine interface design specification

The Story Teller's Human-Machine Interface (HMI) design specification is designed to maximize user interaction and overall system functionality. The specification emphasizes user-friendly elements and intuitive navigation in recognition of the diverse user base. The design ensures accessibility for users with disabilities while incorporating a visually appealing and responsive interface with a modern colour scheme. The HMI provides flexibility in user interaction by facilitating multiple input methods, such as keyboards.



SAMPLE TEST DATA & RESULTS

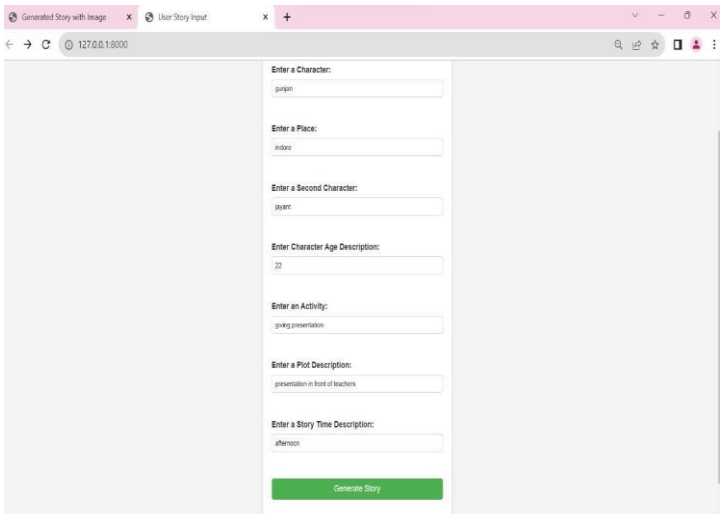


Fig -2: Figure

Fig -1: Figure

RESULT

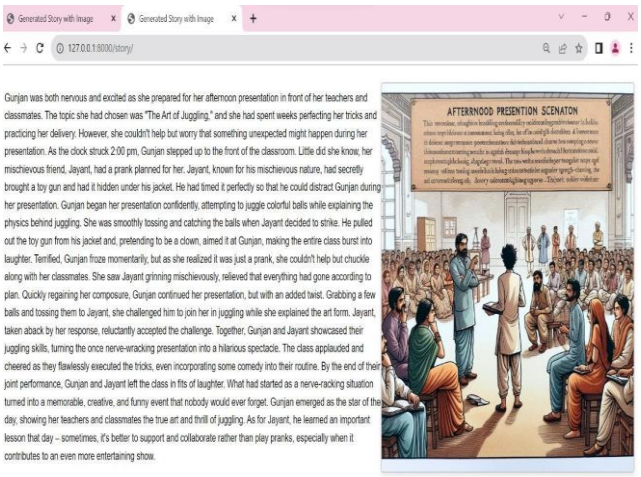


Fig -3: Figure

3. CONCLUSIONS

To sum up the potential for ai generated storytelling to evolve into more creative, emotionally intelligent and dynamic forms holds promise for personalized and immersive Narratives experiences. Collaboration between ai and human authors may lead to novel and compelling stories that blend the strength of both creators. The prospect of interactive and multimodal storytelling opens up new avenues for user engagement and participation rather than replacing human storytellers. AI can serve asa powerful collaborator. This system can assist writers in brainstorming ideas, overcoming creative blocks and even co-authoring stories. From aiding human authors to personalized narratives AI become a valuable tool in the creative process however as we explore these possibilities, we must navigate the ethical and creative challenges that come with this technology.

REFERENCES

[1] The New York Times (2022). Kevin Roose. 2022. The brilliance and weirdness of ChatGPT. https://www. nytimes.com/2022/12/05/technology/chatgpt-ai-twitter.html.

[2] Chow, P. S. (2020). Ghost in the (Hollywood) machine: Emergent applications of artificial intelligence in the flm industry. NECSUS_European Journal of Media Studies. 9(1), 193–214

[3] Crompton, H., Jones, M. V., & Burke, D. (2022). Afordances and challenges of artificial
intelligence in K-12 education: a systematic review. Journal of Research on Technology in Education. 1–21

[4] Klimashevskaia, A., Gadgil, R., Gerrity, T., Khosmood, F., Gütl, C., & Howe, P. (2021, November). Automatic News Article Generation from Legislative Proceedings: A Phenom-Based Approach. In International Conference on Statistical Language and Speech Processing (pp. 15–26). Springer, Cham.

[5] Tsafnat G, Glasziou P, Choong MK, et al. (2014) Systematic review automation technologies. Systematic Reviews 3: 1–15

[6] Transformer Jr, G. P., Note, E. X., Spellchecker, M. S., & Yampolskiy, R. (2020). When Should Co-Authorship Be Given to AI? PhilArchive. GPTWSCv1 (philarchive.org)

[7] Alhussain, A. I., & Azmi, A. M. (2021). Automatic story generation: a survey of approaches. ACM Computing Surveys (CSUR), 54(5), 1–38

[8] Young, R. M., Ware, S. G., Cassell, B. A., & Robertson, J. (2013). Plans and planning in narrative generation: A review of plan-based approaches to the generation of story, discourse and interactivity in narratives. Sprache Und Datenverarbeitung, Special Issue on Formal and Computational Models of Narrative, 37(1–2), 41–64.

[9] Data Mining and Knowledge Discovery 1998.Murthy S. K., Automatic Construction of Decision Trees from Data: A Multi-Disciplinary Survey., 2(4):345-389,

[11] Bzdok, D., Krzywinski, M. & Altman, N. Machine learning: supervised methods. Nat. Methods 15, 5–6 (2018).

[12] Zhang, S., Li, X., Zong, M., Zhu, X. & Cheng, D. Learning k for kNN classification. ACM Trans. Intell. Syst. Technol. 8, 1–19 (2017).

[13] Edwards, A. & Cavalli-Sforza, L. Analysis of human evolution. In Genetics Today. Proceedings, 11th International Congress of Genetics, The Hague, The Netherlands 3, 923–933 (1963).

[14] Z. Wang and X. Li, “Face Recognition Based on Im-proved PCA Reconstruction,” in Intelligent Control and Automation (WCICA), 2010 8th World Congress on, 2010