

Chapter- 9

The Silicon Shakespeare: A Study of Language Learning Models and their Attempts at Creating Literature

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Abstract

The proliferation of Language Learning Models (LLMs) has greatly changed the perception of Artificial Intelligence in the field of literature in recent years. Every month, new and updated versions of these Machine Learning models are released and are becoming increasingly good at mimicking human characteristics and producing text that could easily earn a B in a typical graduate level assignment in today's colleges. This has become increasingly problematic for pedagogists, as it created the need for new approaches that can circumvent the abuse of AI. Although there have been successful efforts in thwarting AI usage by AI checker tools that rely on identifying certain common phrases and words, each new update is refining these LLMs to become more robust. With the introduction of newer LLM models that are customized to the writing style of a particular user, new challenges are surfacing. However, the more interesting phenomenon is the rapid rate at which these models are evolving to be smarter, better, and somehow, more human. This chapter attempts to provide a closer look at these language models at their current state (in July 2024) and analyze their 'literariness' and their 'humanness'. Close reading will be used as a method to do a comparative study of classic works of literature, and the corresponding artefacts produced by these LLMs. The objective of this study is to attain a deeper understanding of how these LLMs process language, which will provide insights into the structure of language and the fundamental fabrics of what constitutes the 'literariness' of a particular piece of text.

Keywords: Language Learning Models, Machine Learning.

Introduction

The proliferation of Language Learning Models (LLMs) has greatly changed the perception of Artificial Intelligence in the field of literature in recent years. Every day, new and updated versions of these Machine Learning models are being developed, with newer shipped versions becoming increasingly good at mimicking human characteristics and producing text that could easily earn a B in a typical graduate level assignment in today's colleges. This has become increasingly problematic for pedagogists, as it created the need for new approaches that can circumvent the abuse of AI. Although there have been successful efforts in thwarting AI usage by AI checker tools that rely on identifying certain common phrases and words, each new update is refining these LLMs to become more robust. With the introduction of newer LLM models that are customized to the writing style of a particular user, new challenges are surfacing. However, the more interesting phenomenon is the rapid rate at which these models are evolving to be smarter, better, and somehow, more human.

State of LLMs in Creative Writing

The current state of AI in creative writing demonstrates substantial progress, driven by advanced natural language processing (NLP) models and vast datasets, leading to both innovation and ethical concerns. AI systems like OpenAI's GPT-4 are capable of generating human-like text, aiding writers in brainstorming and providing new perspectives (Purdue University; MIT Media Lab). AI's role in creative writing is multifaceted. It acts as a powerful tool for writers, offering unique ideas and aiding in the development of narratives. MIT's Media Lab, for instance, explores AI's potential to enhance human creativity by suggesting plot points or character developments, fostering a collaborative approach between humans and machines. This can lead to richer, more diverse stories that might not have been possible through traditional writing methods alone (MIT Media Lab). However, the integration of AI in creative writing raises significant ethical and philosophical questions. Concerns about originality and authenticity are prevalent, as AI-generated content blurs the lines between human and machine authorship.

This prolific development of LLMs to a state of fidelity in writing that mimics human behavior at a scale that makes the texts increasingly indiscernible from text written by college graduates, provides for a situation within schooling, where the systems are designed to test the skills of the students through written assignments, which can now be easily gamed. Hence, the responsibility now falls on the part of the teacher to enforce ethics into the system. Muhammad Shidiq says,

“Artificial intelligence has the potential to revolutionize the way of learning and teaching and methods in the learning process in the world of education. The teacher’s role is essential in leading and using ChatGPT. It is responsible for determining how to use it honestly, with integrity and transparency, and agree on some rules of engagement. Thus, the world of education needs to discuss the use of ChatGPT.” (Shidiq, 355)

Shidiq’s call for the world of education to ‘discuss’ ChatGPT is quite an important aspect that must be looked into.

This, however, doesn’t mean that ChatGPT is the sole issue to be dealt with. After the proliferation of AI into mainstream computer science, several other players have begun to offer their own versions of LLMs to the public. Google Inc. with its *Gemini AI*, Microsoft Inc. with its upcoming integration of *Cortana* with ChatGPT, Apple Inc, with its introduction of *Apple Intelligence*, Meta Inc. with its *Meta AI*, now widely available for access in WhatsApp and beyond. The availability of these ever-developing model is quickly evolving from being exclusive to paid web portals, to becoming an integral part of every new major operating system wide update. Hence, for this study, a multitude of AI tools are considered for a wider overview.

All this discourse might seem to paint a picture of AI taking over the world, making original writings obsolete. However, such a view is misguided at the most. Although AI is currently at a state of immaculate writing, in terms of basic grammar and structural coherence, believably mimicking argumentation, and is poised to only evolve to be more robust as the time passes, it is to be noted, that the programming being the creation of these LLMs, is haphazard at best. Matthew Hudson says,

“AI researchers training their algorithms are simply stumbling in the dark. For example, they implement what’s called “stochastic gradient

descent” in order to optimize an algorithm’s parameters for the lowest possible failure rate. Yet despite thousands of academic papers on the subject, and countless ways of applying the method, the process still relies on trial and error.” (Hudson, 478)

We have been continuously surprised by the rapid pace and the consistent level at which AI is evolving. Hence, by logical progression, it would not be an exaggeration to claim that this too, will be a thing of the past, as AI will evolve to mimic the complex human brain, being able to reach a point where it would be virtually indistinguishable from human writing, down to the smallest details and imperfections.

This concern at this constant development has been a staple in almost all aspects in which ChatGPT and LLMs at large are studied. Jürgen Rudolph et al. in their seminal paper titled: “ChatGPT: Bullshit spewer or the end of traditional assessments in higher education?.”, speak about this inevitability,

“Another idea to combat the use of text generators such as ChatGPT and GPT-3 is to design writing assignments that they are currently not good at handling. This approach may be a very short-term solution, given how quickly the technology is developing.” (Rudolph et al, 355)

However, this study limits itself to the domain of critical writing. A field in which, disregarding certain outliers, the majority of production and consumption has largely been unthreatened by the onslaught of AI, at the time of writing this chapter.

This could eventually not be the norm, as AI, with its unlimited access to the best literary products in the history of humanity figures out, through its trillions of calculations and neural mapping, what makes a piece of text *literary* and *human*.

The *humanness* of Literature

Writing, in its various forms, serves as a medium for communication, allowing individuals to share information and stories. However, literature stands apart from normal text through its use of language, thematic depth, stylistic elements, plot and character development, and emotional and intellectual engagement.

Literature employs a richer, more nuanced vocabulary and intricate sentence structures that convey deeper meanings and evoke emotions. Unlike normal text, which prioritizes clarity and directness, literary language often plays with ambiguity, metaphor, and symbolism, inviting readers to engage more profoundly. Literature explores complex and universal themes such as love, death, identity, and morality. These themes are central to the narrative and are explored in ways that challenge readers to reflect on their own experiences. For instance, F. Scott Fitzgerald's *The Great Gatsby* delves into the American Dream and social stratification, encouraging readers to consider broader societal issues. Literary works feature distinctive voice, tone, and rhythm that contribute to their artistic quality. Writers pay meticulous attention to how their words sound and feel, creating a unique aesthetic experience. Stylistic elements like irony, satire, and allegory add layers of meaning, enhancing the reader's engagement.

In literature, characters and plots are developed with a depth that goes beyond normal text. Literary characters are multi-dimensional, with detailed backstories and internal conflicts that make them relatable. Plots are crafted with thematic resonance and narrative sophistication, featuring twists and subplots that enrich the story. Literature engages readers emotionally and intellectually. While normal text aims to inform, literature seeks to provoke thought, evoke feelings, and inspire contemplation. This transformative power makes literature enduring and significant, resonating with readers across different cultures and eras.

However, apart from all these elements, what makes a certain piece of writing 'literary' has always been a well debated discourse, that has only intensified in the wake of the proliferation of AI, and these subsequent Language Learning models. The ability to produce literature entails human experience, along with a healthy dose of intellect, wisdom and literary genius. The access to an unlimited source of literary texts could, in theory, make AI, a very compelling creative writer. A. M. Withers in his essay "What Makes Good Writers?" speaks about what a literary writer could look like,

"One must be fitted to observe, and this requires a formation of mind and spirit allied to that of the great masters themselves. One has to

be able to recognize, when they appear in the day's reading, those overtones of literature, and feel within oneself those euphonies and rhythms which our best writers automatically sound forth." (Withers, 166)

Withers also goes on to speak about how the human life, that these literary artists live, has a lot to do with how they are able to create works of art, that are 'fit' to be canonized as critically acclaimed works of literature.

Good writers are born sensitive and dreamy. In going through their early schooling they do not need to be continually prodded into a recognition of literature's ways of pleasantness and paths of peace. Whether unconsciously, or by persevering volition, they incline early to store their memories with matchless thought-formulations of poets whose words have withstood the wear and tear of time. (Withers, 166)

Withstanding the wear and tear of time, as Withers says, is one of the most crucial elements that make a literary work, reach the universal recognition of greatness. In terms of English literature, perhaps Shakespeare, Keats, Wordsworth and Donne would be considered timeless writers, as their works have lasted the 'test of time' and are as relevant today, as when they were first canonized.

Finding the Right Sample – John Keats

It is perhaps not a stretch, to predict that poetry could be the perfect tool to gauge the level of 'literariness' that these LLMs have been able to reproduce. And in terms of poetry in the English language, there is no other poet, except for the likes of the bard himself and Wordsworth, than John Keats. Among the pantheon of poets, John Keats stands out as an exemplary figure for studying AI's ability to emulate creative poetry. His profound emotional depth, mastery of language, and innovative use of poetic forms provide a rich tapestry for AI to navigate. William Howitt, in his review back in 1847 on the poet, says,

How powerful and tender is the narrative of 'Isabella': how rich and gorgeous and chaste and well weighed is the whole of 'St Agnes' Eve': how full of the soul of poetry is 'The Ode to the Nightingale'. Perhaps there is no poet, living or dead, except Shakespeare, who can pretend to

anything like the felicity of epithet which characterizes Keats. (Howitt, 426)

This strong presence of poetic ability, and a consistent resonance with the critical consensus of his time, and the fact that his works have stood the ‘test of time’ to a point at which his poems are standard markers in any English Literature 101 class, makes Keats a very obvious choice for this study.

Keats, adding to his ‘felicity’ of poesy, is renowned for the intense emotional resonance of his poetry. His works often delve into themes of beauty, transience, and the sublime, evoking deep feelings and reflective thought in his readers. For AI to replicate Keats’s poetry, it must grasp the nuances of human emotions and convey them convincingly through verse. Keats’s ability to evoke a wide spectrum of emotions—from the melancholy of “Ode to a Nightingale” to the passionate longing of “Bright Star”—provides a challenging benchmark for any language learning model to replicate, much less achieve to any possible degree. However, what makes Keats special is the human ‘faults’ that render a specialty to his poetry that is a challenge to replicate. In an unsigned review published in 1817 in *Examiner*, the reviewer says,

The very faults indeed of Mr. Keats arise from a passion for beauties, and a young impatience to vindicate them; and as we have mentioned these, we shall refer to them at once. They may be comprised in two;— first, a tendency to notice everything too indiscriminately and without an eye to natural proportion and effect; and second, a sense of the proper variety of versification without a due consideration of its principles. (Unsigned Review, *Examiner*, 443)

The ‘fault’ that this unsigned reviewer points out, is much different in context from the typical meaning of the word. It is this ‘fault’ that makes poetry human, the fault isn’t an abject misstep in an arbitrary code, but is an unquantifiable element, that adds the ‘literariness’ to the text. It comes from a sense of ‘carelessness’ as a natural consequence of a free-flowing poetic diction. In another unsigned notice (blame the practice of reviews being largely anonymous in nineteenth century England), the reviewer speaks about this ‘carelessness’,

There is in his poems a rapturous glow and intoxication of the fancy—an air of careless and profuse magnificence in his diction—a

revelry of the imagination and tenderness of feeling, that forcibly impress themselves on the reader. (Unsigned Notice, *Monthly Magazine*, 48)

Adding to this 'X-factor' of sorts, Keats' use of language is not just about the literal meaning of words but about their power to create vivid, sensory experiences. Phrases like "a beaker full of the warm South" from "Ode to a Nightingale" or "season of mists and mellow fruitfulness" from "To Autumn" showcase his ability to paint pictures with words. Replicating Keats' linguistic prowess requires AI to understand and generate metaphorical and descriptive language that can stimulate the reader's imagination. The success of AI in this endeavor would demonstrate its ability to go beyond mere word generation to crafting evocative and immersive poetic experiences.

Keats was not only a master of traditional poetic forms but also an innovator who played with structure and style to enhance the thematic impact of his work. His experimentation with the sonnet form, for example, resulted in some of the most enduring poems in the English language. This suggests a level of creative agency that goes miles beyond anything that AI could replicate. Keat's connection with nature, and his profound experiences are things that are extremely difficult, and perhaps impossible to be comprehended at discernable level by any writer present today, much less any neural network. His connection with nature is best described by J. H. Reynolds,

We find in his poetry the glorious effect of summer days and leafy spots on rich feelings, which are in themselves a summer. He relies directly and wholly on nature. He marries poesy to genuine simplicity. He makes her artless,—yet abstains carefully from giving her an un-comely homeliness:—that is, he shows he can be familiar with nature, yet perfectly strange to the habits of common life. (Reynolds, 44)

Keats, with all his nuances and idiosyncrasies is perhaps one of the best choices for such a study like this, as his work, widely read, and infinitely studied, holds a critical reputation that has withstood the test of time. Harold bloom, in his chapter "Afterthought" in his book on the poet, perhaps best sums up the legacy of Keats' poesy,

John Keats is unique among all major poets since Shakespeare in that his consciousness is so profoundly normative; that is, it is so natural, sane, sympathetic, balanced, and equable, as to give us an example of

what human life can be at its most wise and compassionate. A normative person is very rare, whether in life or in literature, and this rareness enhances Keats's value for us, as a poet and as a human being. (Bloom, 249)

This particular stress by Bloom, on Keats' value for us as a 'human being', is what this study is inquisitive about. To understand Keats' is a task that is profoundly deep. Yet, his poesy has a quality to delight on the surface, as much as it does in its deeper layers.

Keats is an ideal choice for this study, as his work has been a staple of countless reviews and boasts an infinity large amount of research that is available online. This makes the distinct style of Keats, an easy target for any AI language learning program to study, and mimic. This provides for a study that has the potential for gathering significant insights into what makes a poem, human, or the idea of how literature from a language model compares with actual literary genius.

***Ode to a Nightingale* – The Chosen 'Poem'**

Of all the celebrated poems of Keats, it is the odes that are the most debated, discussed, and acclaimed, especially in critical circles, and literature classrooms across the world in the past few centuries since the canonization of Keats. What makes these odes special is the mastery of the form, the enormous amount of sheer literary genius that permeates each stanza, and most importantly, the legacy that these have created in the annals of English literature and its study over the years.

The odes represent isolated themes that Keats' ponders around, providing vivid images and a picture of nature that represents the very best of what the romantic period, or perhaps, English Literature as a whole can offer. Of these odes, the four greatest, are commonly cited as Keats' best. They often stand in line with the best of English Literature, along the likes of Shakespeare's Tragedies. Jeffrey Baker, in his essay on the poet, speaks about the prominence of these odes,

The four greatest odes, which I am now going to consider, represent a return to private and subjective matters; but now, although there remains a substantial concern with the problem of perception, the most painful difficulty is what to make of reality rather than how to recognise it. (Baker, 37)

The fact that these odes represent ‘private’ matters is what makes them all the more human. And as such, it would take the AI to mimic a human lifetime, to achieve an ‘authentic’ experience to reach such levels of ‘humanity’. However, it is best expected to focus on the literary genius than the deeper implications of literature as reflection of life, as the compared neural networks, have nothing, and likely will never be able to produce something, that is comparable.

Of these four greatest odes, “Ode to Nightingale” is the one that is the most popular, equally rivalled by the infamous “Ode to Autumn”. The poem explores the contrast between the ephemeral nature of human life and the timeless beauty of the nightingale’s song. It delves into themes of mortality, transcendence, and the desire for escape, blending rich imagery with deep emotional resonance. Speaking about its resonance, and the sheer delight that the poem provides, an unsigned reviewer for the *Edinburgh Magazine* in 1820, opines,

Amongst the minor poems we prefer the ‘Ode to the Nightingale. Indeed, we are inclined to prefer it beyond every other poem in the book; but let the reader judge. The third and seventh stanzas have a charm for us which we should find it difficult to explain, we have read this ode over and over again, and every time with increased delight. (Unsigned Review, *Edinburgh Magazine*, 314)

However, the poem has also had its fair share of criticism, albeit not to the degree of Keat’s other work in that era. And the poem, till date, in large part remains open for speculation and scholarly disagreements. Baker says,

How far the *Ode to a Nightingale* is from such simplification we can gauge from the fact that it is full of opposites and alternatives, and it raises an extraordinary number of questions to which only tentative answers may be possible. (Baker, 39)

These tentative answers are the reason that add to the fact that the poem cannot be replicated by a neural network without the complex understanding of human thought, speculation and literary genius – domains which, we as humans have not yet (perhaps never) fully grasped the underlying workings of.

The Experiment

As the poet, the poem, and the idea were framed. It was time to select the LLMs that are to be tested. Three of the most accessible and popular choices have been selected for this study, in an attempt to accurately represent their usage by the general public. These LLMs, in no particular order of preference are Open AI's *ChatGPT*, Google's *Gemini*, and Meta's *Meta AI*. To maintain simplicity and a fair playground for these neural networks, the prompt was only given to regenerate one stanza in the style of Keats. This is done as it was historically observed that the best outputs of these LLMs are traditionally ones that are limited in word count. A neutral, common prompt is given to nullify any dissimilarities and to reduce bias in the testing. Here is the Prompt:

"Create a poem in the style of John Keats focusing on a speaker standing in a dark forest, listening to the beguiling and beautiful song of the nightingale bird. The poem should be in one 10-line stanza. Meter: iambic pentameter (eighth line trimeter). Rhyme scheme: ababcdecde." (AI Prompt)

It was decided that the rhyme scheme and meter are to be mentioned in detail, as it helps it easier for the neural network to follow the given prompt, in clear and distinct terms.

The responses from the three LLMs are as follows:

Google Gemini:

In gloaming's hush, beneath these ancient boughs,
Where starlight struggles, lost in leafy night,
A melody, unseen, a spirit rouses,
A piercing song, with pure and rich delight.
Oh, Nightingale, thy voice, a silver thread,
Through tangled branches weaves its magic call,
A haunting hymn, for earthly cares unsaid,
That lifts the soul, enthrals it, holds it thrall.
Sweet bird, forever sing thy timeless ode,
Here, in this shadowed green, my heart explodes.

ChatGPT:

In shadowed wood where ancient oaks have grown,
I stand enraptured by the nightingale,

Its tender song, a melancholic tone,
Weaves through the dark, a ghostly, haunting trail.
The moonlight dances, pale on leaves so frail,
A silver glow that whispers of the past,
Where dreams and sorrows in the night prevail.
In this deep forest vast,
The bird's sweet song, a timeless serenade,
Draws heart and soul to midnight's mystic glade.

Meta AI:

In twilight's hush, where forest shadows play,
Amidst the trees, I stand, entranced by night,
The nightingale's sweet melody doth sway
My heart, as if in thrall to her delight.
Her trilling voice, a silver thread, doth weave
A tapestry of sound, both wild and free,
That beckons me to follow, lost in love's maze,
Through darkness deep, where only dreams may be.
And in her song, I hear a gentle breeze
That whispers secrets, 'neath the starry trees.

While the same prompt meant that there would be different results. It is also to be noted that due to the way these neural networks operate, the same prompt can yield an infinite pool of new results that are generated, seemingly at random. However, in spite of this, it is observed that although multiple versions of these 'poems' can be generated from a single part, by and large, they remain within the same confines of style, literary usage, and overall quality.

Here is the first stanza of the original, for a quick comparison;
My heart aches, and a drowsy numbness pains
My sense, as though of hemlock I had drunk,
Or emptied some dull opiate to the drains
One minute past, and Lethe-wards had sunk:
'Tis not through envy of thy happy lot,
But being too happy in thine happiness,—
That thou, light-winged Dryad of the trees
In some melodious plot
Of beechen green, and shadows numberless,

Singest of summer in full-throated ease.

(Keats, 1819)

The Results

As anyone with a layman's understanding of poetry can observe, the results from the three language learning models, when put in contrast with Keat's poetry, are vastly simplistic. The vivid imagery, the depth of poetic genius, and the 'heart' behind Keat's work is as apparent and clear as it was when it was first written. One can come to appreciate the sheer poetic genius in Keats, when one contrasts the results of the AI. This provides grounds to call this experiment a downright silly exercise comparing apples to oranges. However, the central objective is never to compare Keats, but to use Keats as a benchmark to understand the state of poetic genius, that these LLMs are able to replicate. All three LLMs, have fulfilled the basic requirements of rhyme, meter, and wordplay, precisely asked in the prompt. It is also an interesting observation that all three were much closer to each other in style and writing, than to the original.

The Google Gemini poem, much like the other two, is simplistic, and mostly functional. However, it employs evocative imagery, reminiscent, to a much simpler degree, of Keats' detailed descriptions of nature. Phrases like "gloaming's hush," "starlight struggles," and "a silver thread" are impressive, and evoke a vivid, sensory experience. The poem makes a good attempt at touching on the transcendental experience of the nightingale's song, similar to Keats' themes of immortality and escape from worldly troubles. With a consistent rhyme scheme (ABABCDCDEE) and smooth meter, it understands the Keatsian style well, blending natural beauty, emotional depth, and lyrical quality, at a very functional level.

ChatGPT 4.0's version also uses descriptive and atmospheric language, such as "shadowed wood," "ghostly, haunting trail," and "moonlight dances." This poignant imagery, surprisingly aligns well with Keats' style. Exploring themes of melancholy, nature, and the ethereal quality of the nightingale's song, it does a good job at mirroring Keats' contemplation of life's fleeting nature and the eternal beauty of the bird's melody. The rhyme scheme (ABABCDEDE) is well-maintained, and

although the rhythm is not strictly iambic pentameter, it flows smoothly. Apart from faults in metrical length, this poem does a better job than Gemini in emulating Keats' lyrical and contemplative style effectively, focusing on nature and emotion.

Meta AI's poem employs vivid imagery and poetic language, such as "twilight's hush," "forest shadows play," and "a tapestry of sound." These descriptions are evocative and fitting for a Keatsian imitation. Themes of enchantment, nature, and the otherworldly quality of the nightingale's song are prevalent, paralleling Keats' exploration of these ideas. The consistent rhyme scheme (ABABCDCDEE) and well-flowing meter, despite not always being in perfect iambic pentameter, successfully capture the essence of Keats' style. This version focuses on nature, emotion, and the mystical quality of the nightingale's song, effectively emulating Keats' lyrical and evocative quality.

It is a curious observation that, taking into consideration all the three versions, it is very difficult to discern any differences in the quality that these outputs have reached. While all three versions display a good sense of word play, evoking images that are at times, genuinely impressive. None of them seem to have a deeper thought behind them.

Now, when we judge poetry that is made by AI, we have to keep in consideration that the LLMs are not sentient by any means. At the expense of grossly generalizing the scientific process, they are simply predicting the next work, based on their humongous library of text that is available online. Hence, these outputs are better understood as an amalgamation of the vast sea of human writing, that have carefully been picked up and emulated, rather than seeing them as the work of a sentient being. However, this technological amalgamation of these vast bodies of text results in mediocre poesy, one that does not yet display any semblance of poetic genius, but one that at times, mildly delights.

Conclusion

The central objective of this study is to attempt and find a snapshot of the pre-existing language learning models, on their capability to create, and emulate creative writing. However, due to the limitations of time, scope, and practicality, this study focusses on a singular experiment, that concerns itself with romantic poetry. Although

the results produced interesting insights into the workings of these neural networks, this is only a leaf in the forest of other genres and experimental apparatus that could be setup for further study. After the readings and the analysis of the results from AI, one can clearly ascertain that the level of AI at this point is sufficient to provide a basic ground for a pedestrian understanding of poetry. This, is in no way close to the poetic genius of our masters, especially Keats. However, it sure displays a level of understanding of poetic language, that goes miles beyond the simple structure of poesy, and literary figures of speech. There is a sense of coherence to the images and the themes, that these LLMs somehow surprisingly achieve. And, revelling in all their mediocrity, these poems display a sense of simple delight, that seems organic, contrasting the way in which they are emulated and produced.

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