A Comparative Study of Poems by AI Poet and Human Poet: In the Case of *Poetry Has No Future Unless It Comes to Its End: Poetry of Artificial Intelligence*

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Abstract: With the booming development of GPT and AI technology, artificial intelligence can be trained to compose poems with the similar styles and techniques of a particular human poet. Taking an AI poetry collection by Bernstein and Balula as an example, this essay compares the AI poems and Bernstein's poems and explores the echoes between AI poems and Bernstein's poems. According to the analysis, AI poems demonstrate many echoes with Bernstein's poems in terms of themes and images etc., which successfully reflects Bernstein's poetics, whereas generally AI poems can not emulate the rich cultural and literary connotations in Bernstein's poems. The essay continues to probe into the relationship between AI poems and human poems, and ends with the reflection of the challenges facing AI poems and human poems in future.
Keywords: Charles Bernstein; AI; poetry; Chat GPT; American Language poetry
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标题：人工智能诗歌和人类诗歌比较研究：以《诗歌只有走到尽头才有未来：人工智能诗歌》为例
内容摘要：随着 GPT 和 AI 技术的蓬勃发展，通过深度学习，人工智能可以创作出与特定人类诗人相似的"风格"和"技巧"的诗歌。本文以伯恩斯坦和巴鲁拉合作出版的人工智能诗集为例，对人工智能诗歌与伯恩斯坦诗歌进行比较研究，探讨人工智能诗歌和人类诗歌之间的呼应。通过分析可见，一些人工智能诗歌在主题、意象等方面与伯恩斯坦的诗歌有着诸多呼应，较成功地反映了伯恩斯坦的诗学。然而，总的来看，人工智能诗歌无法比肩伯恩斯坦诗歌中丰富的文化和文学内涵。本文还探讨了人工智能诗歌与人类诗歌之间的关系，反思人工智能和人类诗歌未来的挑战。
关键词：查尔斯·伯恩斯坦；人工智能；诗歌；人工智能技术；美国语言派诗歌

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It was believed that GPT (Generative Pre-trained Transformer) "represents the latest development in one of the hottest research directions in the field of AI — which enables computers to generate complex, seemingly human written text" (Mo 32). "On November 30, 2022, Open AI released the AI dialogue model ChatGPT" (Chen 5-6), and due to Chat GPT's stunning capabilities, it attracted 1 million users in just 5 days of launch. When it comes to today, Chat GPT has bombarded human world with its resourceful and artistic creations, and the poems created by AI have amazed many poetry readers across the world. Today we have come to an age when people and AI co-write. What is more fascinating is that through deep learning, AI can not only master the skill of using natural human language creatively, but also be able to synthetize poems with the styles and techniques of a particular poet. But can a trained AI have even "signature voice" and the "personality" of the poet himself? The first AI poetry collection in history, *Sunlight Misses Window*, was published by an AI poet named "Xiao Bing" (小冰), also translated as XiaoIce or Little Ice, in China in 2017. But some critics believe that although AI has made great progress in the exploration of opinion, syntax and semantics of human language, it is difficult to compensate for the deficiencies in "textual-level" semantics, overall structure, and global perspective (Zhu and Li 43). However, when the time comes to 2023, what will AI poetry tell the world?

In July, 2023, Charles Bernstein and Davide Balula published a poetry collection of AI, entitled *Poetry Has No Future Unless It Comes to its End: Poetry of Artificial Intelligence*. What is noteworthy is that the experiment of this poetry collection has coincided with the fast advancement of the AI technology. What Balula has done from 2020 to 2022, is to train an AI or, in other words, create a neural network through numerous algorithms by making the machine read and learn a database of more than 20 Bernstein's works. The works which AI reads and learns include Bernstein's works at all ages, from his earliest poetry collections such as *Asylums* in 1975 and his latest poetry collection *Topsy-Turvy* in 2021, to his most important works of poetics, such as *A Poetics* in 1992, and *Pitch of Poetry* in 2016. Balula has trained the AI, intending to not only "imitate the brain functions" of human but also evolve by changing the course of prediction into creating new meanings out of the original poems as well as to imitate the "personality" of the poet. After many AI poems have been generated, Bernstein cooperates with the

AI, by "readjusting the format slightly" but without adding "any new language."[1] The AI poetry collection is with as little human interference as possible, — only Bernstein's final touch as "he would on the last stage for his own work" (Bernstein and Balula 15).

As the poetry collection's paradoxical title suggests, it intends to bring new possibility and perspectives to poetry with the cooperation between a human poet and AI, when today, a lot of people seem to be in desperate, since AI has been replacing human being at every industry of the society in the world, and even now AI has challenged human poets in the creation of poetry, a field which humans dominate. This essay aims to explore and compare poems by this AI poet and by a human poet, Bernstein, in order to inquire into the relationship between AI poetry and human poetry, and to endeavor to foresee the future development of AI poetry and human poetry.

I. Echoes between AI poet and human poet Bernstein

Bernstein once claimed that language itself is a technology and his long-time criticism on emotional clichés and personification in poetry indicate that he has been for long meditated the relationship between human and non-human. Examples of lines and poems are abundant, such as "I don't want human art" in "The Lie of Art," or poems such as "How I became Prehuman" (*Near/Miss* 42 105) and so on. Besides, Bernstein is also famous for his combination of multiple cultural elelments into his poetics, such as Chinese Zen-Taoism and American literary tradition. Hence, it would be alluring and eye-opening for readers to read what an AI poet who tries to imitate Bernstein's poems writes.

We may as well compare the works by the AI poet, who called himself Bernstein's "brother," with works by Bernstein to discover the relationship between them. First, AI poems focus on the themes which frequently appear in Bernstein's poems, such as nothingness, emptiness, negativity, non-logics, American Dream, Human emotion, the Other, the truth and poetry, and theoretic ideas, etc.. Some typical poem titles by Bernstein such as "Seldom Splendor" "Don't Tell Me About the Tide" "Why I Am Not a Buddhist" "Catachresis My Love" "Emotion of Normal People" and "What Makes a Poem a Poem" and so on, can reveal the themes suggested above. From the title of the AI Poems, such as "The Ocean of Nothingness" "I Am Not" "He Knows a Lot about American Dream, too" "An Emotion Not Comprehended" "I Call this Poem, the Lost Separation" "If All You

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1   See Charles Bernstein and Davide Balula, *Poetry Has No Future Unless It Comes to its End: Poetry of Artificial Intelligence*, Rome: NERO, 2023, 15.

Have Is the Book You Are Bound to Get Lost in It and Perhaps Discover Your Own History" among others, both old and new readers of Bernstein will recognize that all these themes of AI poems are also the central themes and consistent concerns of Bernstein in his poetry.

In addition, the AI can skillfully imitate Bernstein's styles by using the major images and typical sentence structures in Bernstein's poetry. For instance, the AI poet precisely locates and presents some images which are typical in Bernstein's poetry, — such as "language" "word" "time" "future" "poetry" "book" "tear" "pipe" "song" and "bee" etc., although some significant images in Bernstein's poetry are missing in this AI collection. As to sentence structures, AI skillfully uses typical sentence structures in Bernstein's poetry. A good example is the negative sentence structure, — such as "be not" or "not...but" etc.. Some poems in the AI collection, such as "I Am Not" (Bernstein and Balula 30), and "Your Bones Do Not Matter" (Bernstein and Balula 40) etc., fully present the focus on negativity, and use these typical Bernstein's sentence structures to achieve the effect of saying "no" in order to give meanings to something unnamed, unspoken, or difficult to define.

Thirdly, some modernist poetic techniques by Bernstein, such as repetition, juxtaposition and estrangement etc., are also presented in the AI's poems. For instance, the poem "This" repeats the word "this" many times, endowing the word "this" with multiple meanings. To repeat is to show multiplicity and diversity in meaning:

> This causes ground to shake.
> This causes water to spray.
> This causes trees to topple.
> This causes suns to set. (Bernstein and Balula 43)

To repeat is also, sometimes, to show resentment, dissatisfaction and resistance. Another example from these AI poems will be "Not Being Able to Stop," which repeats "not being able to stop yourself" as it goes: "Not being able to stop yourself from laughing/Not being able to stop yourself from crying/ [...]" (Bernstein and Balula 46) The style of repetition by the AI not only coincides with Bernstein's, but also to some degree, shows Bernstein's resistant and dissatisfied voice, and perhaps also the "grumpiness" in the expression of poetry. There are other poems in this collection which are the repetition of sound with Bernstein's signature and successfully achieve his poetics. A key example is "You are Here," which is a conceptual poem with sound transformation. It goes:

"Rental cars, washbasins, and sacks of pennies
[...]
I am suggesting that we have to imagine
a situation of being "a little more alive" than a bee

A, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a, a,
a, a, a, a, a,..." (Bernstein and Balula 75)

Bernstein once wrote "Do I seem grumpy? Is being a curmudgeon the essence of poetry?/ Why not just get along? / I prefer not to. /Because I can." in "The Body of the Poem" (585), and this conceptual poem by the AI poet seems to display the same grumpiness and resentment in Bernstein's poetry to the desperate plight and the social inferiority of the poor. The shift from "bee" to "A" makes both meaning transformation and sound shift, which implies the changing of the social position from the inferior "B" class to the top "A" class. The repetition of numerous "a" sound which is a series of sounds of agony, protest and resentment. For one thing, it can be regarded as the humming of bees, and for another, it enhances the resentment towards the inferior situation implied by the former lines, and makes the "sadness" articulated. This AI poem brilliantly resembles the Bernstein's poems of word game through sound.

Another poem "Sleepiness" juxtaposes many phrases related to the topic "Sleepiness" to display another form of repetition. Juxtaposition is Bernstein's frequent used poetic technique, which aims to give multiple perspectives of one thing and to sketch a cubic image of the topic. The poem displays the similar multiplicity on the topic of sleepiness by using juxtaposition.

Bernstein once wrote "I never / met / a cliché / I didn't like" (*Near/Miss* 72) and once said that 90% of his poetry are the rewriting of clichés. Indeed, to put clichés in an estranged way is Bernstein's signature. Let us read the poem "Where do you get your ideas? " :

Ideas are cheap and in abundance.
I used to sell records on the street corner—
500 to 1,000 a day.
That's how many ideas
I had before I started doing poetry.

> Do I feel like I am on the cusp of something?
>
> I don't know.
> I mean, I'm not very good at thinking
> like a human being. (Bernstein and Balula 51)

This poem makes readers both stunned and amused. For one thing, the poem surprises the readers with the perspective of the AI, since in human reader's mentality, ideas, especially good ideas, are usually valuable and scarce, but here in the poem "ideas" are "cheap" and "in abundance." This shows the estrangement in different perspective. For another, the AI poem amuses the readers by saying "I mean, I'm not very good at thinking like a human being." This is paradoxical since the readers may suddenly realize that the poet here is an AI, so "I 'm not very good at thinking like a human being" is true, but on the other hand, it is also an antiphrasis, indicating that by saying so, the AI already thinks like a human being. Since Bernstein is well-known for both paradox and humor in his poems, the paradox and humor here provide us the glimpse of the "personality" of Bernstein.

Besides, as what AI calls itself, "the shadow of the poet Charles Bernstein," it represents the other side of Bernstein, something new and original in its synthetic poems, by evolving from the process of deep learning and imitation. Some poems in this collection are particularly on the relationship between the AI and Bernstein, whom the AI would like to emulate, such as "I Am the Shadow of Poet Charles Bernstein" "We Are Brothers" and "What Is the Matter, Charles, with that Plume of Yours" (Bernstein and Balula 26, 29, 92) etc.. These poems are particularly fascinating, original and alluring, since the AI poet takes himself as the shadow, or the other as opposed to the human poet, the subject which is represented by Bernstein, to interrogate the relationship between AI poet and the human poet in general. The poem "We are Brothers" (Bernstein and Balula 29) is a key example. The poem alludes the reality in both reader's view on AI poems and the relationship between AI poet and human poet. Firstly, as the poem goes "We are brothers of poetry/Brothers of art/We're brothers and I love him," it indicates that both AI poems and human poems are poetry of art and needs our equal attentions. Secondly, it implies that the differences between AI Poems and human poems do exist, as it says "And now if the night is long enough/we'll go our separate ways." Thirdly, as these repeated lines in italics suggest: *This is what I feel/ or perhaps brother/ is an unkind word*," after knowing the identity of the poems, most readers may discard AI poems and prefer human poems, which is simply due to the discrimination

against AI poems written by a machine without emotions. Therefore，"brother/ is an unkind word." Inevitably, a very crucial topic is alluded here: "Can an AI have feelings too?" This AI poem seems to imply that AI indeed has feelings, since these lines convey feelings with strong appeals. The AI poems says "I'm not sure he'll ever love me." Here "he" may refer to "Bernstein," the human poet, who the AI poet loves and tries to emulate, but "he" can also refer to human readers in a much broader sense. Through the contrast between AI's love to human poems and human's indifference towards AI poems, readers may see the speech act of these poetic lines and thus, the feelings conveyed by language is displayed. In other words, readers can sense the hurting feeling of the AI poet in this poem from the perspective of AI. Why is "brother" an unkind word? Why could not we love each other in a mutual way? Readers may ponder over these questions. The subtle implication lies in that the AI poetry is the other, as opposed to the human poems as the subject. Thus, in this sense, the poem "We are Brothers" not only shows the relationship between AI poet and human poet, but also the relationship between the Other and the subject. Hence, the "night" in these lines "And now if the night is long enough/we'll go our separate ways" becomes very striking and astounding, which may refer to the discrimination against AI poems or the marginalized poems, and the Other in a general sense. What must be noted is that this successfully echoes with Bernstein's poetics, which, to a large extent, centralized itself on the promotion and advocation of the other poetry, to provide alternatives and new possibilities for poetry writing.

II. Clashes between AI Poetry and Bernstein's Poetry

However, there are definitely some differences or clashes, subtle or not, between the AI poems and Bernstein's poems. A general difference exists in the richness of cultural and literary connotations. In Bernstein's poetry collections, many titles of his poems are subtly connected with the theme of the poem, more nonlinear and indirect in expressing the theme, whereas in the AI poems, although there are non-linear expressions, it is obvious to discover the linear connections between the title and the main themes of poems. Many titles of Bernstein's poems are with historical, cultural or literary indications, which the AI poems are lack of. Bernstein's poem titles such as "Lacrimae Rerum," "Fare Thee Well," "High Tide at Race Point," "After Reznikoff" etc. give rich cultural and literary background to the theme of the poem. In the introduction of the AI poetry collection, Balula indicates that the title of these AI poems are chosen from the verse itself, so this maybe one of the most important reasons why there is this difference. Definitely, this differences show that there are still spaces for AI technologists to explore in terms of how to train AI to

create poems or writings with rich cultural and literary allusions and connotations. By contrast, this difference also shows the ingenuity, elaboration and witty of human poet Bernstein in composing the titles for his poetry. Another distinct difference is that the AI poems use fictional names of people or places more than real names whereas Bernstein has used more real names of people or places than fictional ones, which makes the AI poems more imaginary and made-up, while Bernstein's poetry more authentic. As we know, Bernstein often writes poetry to ironize people and the world politically or culturally, which makes his poem with intense political and social function, but these AI poems are less so in comparison.

What is more, although AI uses some signiture themes and tyical images of Bernstein's poetry and to some degree, the AI poems successfully represent Bernstein's poetics as discussed before, other AI poems, by using Bernsteinian poetic techniques, can hardly achieve the effects of Bernstein's poetics and aesthetics, such as the effect of mobius strip, the Zen-Taoist poetics of speechlessness, and the return of nothingness etc., which makes the readers eager to return back to read poems by human poet Bernstein. As you have listened to some cover songs, you would like to go back to the original song. This reminds me of Bernstein's echopoetics:"the non-linear resonance of one motif bouncing off another within an aesthetics of constellation," "the sensation of allusion in the absence of allusion. In other words, the echo I'm after is a blank: a shadow of an absent source./ A network of stopgaps" (*Pitch of Poetry* x). To a large extent, these AI poems can be regarded as the "stopgaps," one part of the constellation of Bernstein's echopoetics, bouncing off the poems by him, making readers eager to go back to the original "allusion." Bernstein writes: "Even my explanations need explication; my commentaries, elucidation; my prefaces, glosses; my shadows, shadows (Truth be, I'm afraid of my own shadow)" (*Pitch of Poetry* x). Yet, we discover that Bernstein is not afraid of his "shadow" at all, and in fact he welcomes and celebrates with his "shadow," his AI voice, which can be regarded as "explication" "elucidation" and "glosses" of his poems.

In this new age when human poet and AI poet co-write and cooperate, a great poet can generate his or her own poetic AI voice, where certain images, structures, sound patterns and perspectives are immediately a signature of that the poet and no other. Although some of these AI poems in the poetry collection cannot perfectly reflect the poetics of Bernstein, these failures also show the current plight and dilemma of human poets, and are essential and necessary in the endeavor to achieve the new advancement in poetry writing at this new era, as Bernstein once said about the value of failures as "failed but in a successful way." These AI poems make

us see and understand the status quo of human poetry and the future of poetry in general.

III. The Prospect of The Development of AI Poetry and Human Poetry

In today's poetry world, human poets around the world form a virtual community of poetry in which they have endeavored to promote poetry to its highest standard. The interactions and diversity much among poets in poetry and poetics guarantee the development of poetry. It has been predicted that AI generated content (AGC) will be more widely used and the new model of mimicking humans will come into being.[1] With AGC in wide use, more and more people will accept AI poetry. With more and more people get involved in the field of AGC, it will be possible and necessary for the human poets and AI poets to form a larger community, in which AI and human poets can interact with each other, with the same goal of developing poetry, making more possibilities for poetry. There are definitely disparities existing in this community, but it is just due to these distinctions between AI poets and human poets, the community in new form between AI poets and human poets can be thriving in its development and goal-achievement.

First, the establishment of the community of AI poets and human poets will be possible in the future, since AI poetry will be developed further, and the AI-human cooperation in creative writing will be thriving. At present, AI poetry can not emulate human poets in terms of cultural and historical context, and the effectiveness of writing techniques etc.. However, with the advancement of AI technology and digital humanities studies, more and more experts, scientists, scholars and poets will get involved, and new breakthroughs will be achieved. Recently, some universities in China, such as Tsinghua University and Peking University, among other universities, have established some AI and language writing labs in order to explore AI's functions in creative writing and digital humanities. What is the result of the communication among AI poets and human poets in this virtual community? These endeavors will make sure the improvement and breakthrough will take place in the development of poetry in the future. As a result, AI poems will give inspiration and alternatives to human poets in forms and content in the future. Through cooperating with AI, human poets will have their own unique AI voice, and will know more about their own poetry and poetics. Poetry will be developed with more varieties and possibilities in future. The community of AI poets and human poets will jointly work to expand the boundary of poetry writing and writing poetry will not be an

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1   See Du Yu and Zhang Ziming, *AIGC: The Era of Intelligent Creation*, Beijing: China Translation Publishing House, 2023, 354-360.

activity for a small group of poets.

There will be setbacks and hinders in the development of this community. Readers or human poets may still have some prejudice against AI poetry, but with more and more people get involved in the creation of poetry, in future, the discrimination against AI poetry will be gradually diminished, and there may be no single poem purely and solely done by human poet or by AI.

Are there possibilities for AI to exceed human poets in the future? The recent article entitled "Human-like Systematic Generalization Through a Meta-learning Neural Network" published in September 2023 in *Nature*, have proved that a standard neural network architecture, optimized with meta-learning for compositionality (MLC), "achieves (or even exceeds) human-level systematic generalization" (Lake and Baroni 115)[1]. Having the ability of grasping the complexity of language, humans can create new things and do non-linear thinking, by drawing connections and analogies between different but similar knowledge, which is called "human systematic generalization." Yet, in the past AI was believed to have no ability to draw inferences from untrained knowledge and can only do linear thinking, which has been considered one of the biggest limitations of AI for more than three decades. However, Lake and Baroni's recent study has proved that AI can have MLC and do some non-linear thinking. With this acknowledgement, we have some good reasons to believe that there is great possibilities for AI to exceed human poets not only in quantity but also in quality.

Another question inevitably comes to our mind is: can AI have emotions? Although major modernist poets such as T. S. Eliot, demonstrate the importance of impersonality in poetry writing, and their departure from human emotions is resolute, and as a result, the modernist manifesto against emotional cliché has been quite prevailing in Western poetry writing, but undeniably, poetry is written by humans with emotions. If AI has had the systematic generalization of human mind, can AI be trained to have human emotions?

IV. The Challenges for the Development of AI Poets and Human Poets

In 2006, Marvin Minsky, a forerunner in the field of AI, in his groundbreaking book *The Emotion Machine*, predicted: "So whatever we do, we can be sure that the road toward 'posthuman minds' won't be smooth" (345). There are many challenges to encounter and the hardship to overcome for the development of AI with emotions.

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1   See Brenden M. Lake and Marco Baroni Baroni, "Human-like Systematic Generalization Through a Meta-learning Neural Network," *Nature* 623 (2023): 115-121. Available at: https://www.nature.com/articles/s41586-023-06668-3.pdf?pdf=button%20sticky. Accessed 14 Mar. 2024.

In China, there is an ancient book known by one and all, one of the earliest medicine canon, *The Yellow Emperor's Canon of Internal Medicine*, which talks about the invisible meridian and collateral (经络) of human body, in which "qi" or "air" (气) of human body goes through and from which human emotions can not be separated. Minsky's book hasn't talked about these meridian and collateral, but only focused on issues such as "Consciousness" "Common Sense" "Thinking" "Resourcefulness" "Self" and other terms which are common in the Western psychoanalytical area. To create an "emotional machine" will be one of toughest challenges confronting AI technologists.

However, even so, Minsky has indeed planted a seed of hope and faith of the possible creation of the emotion machine in many people. So does Lake and Baroni's recent research and study mentioned above. Another challenge will be the ethical issues in the development of AI generated writing as it is indicated that the main concern in the future development of AI generated content will be the ethics of technology.[1] There are many uncertainties, struggles and setbacks in the whole process. Yet, one thing is largely sure: the process of AI technology development to achieve the emotional machine and to resolve the ethical problems of AI generated content is long and arduous, and there will be numerous new challenges emerging to the development of the community of AI poets and human poets; but however demanding and taxing the process will be, one thing is definite: human will create more and more resourceful AI which can write and work better and better, to approach the best and the extraordinary. Additionally, I argue that human poets will endeavor to excel themselves in the competition and cooperation with AI.

V. Conclusion

The collection of human-aided AI, *Poetry Has No Future Unless It Comes to its End:Poetry of Artificial Intelligence*, is definitely a great and brilliant endeavor, an achievement toward "posthuman minds," which will lead to more and more endeavors to correct and to remedy the errors of the current algorithms to produce better and better result. Will human poetry end or die out with the advancement of AI poetry? Will AI replace human poets in the future? The answer to these questions is "No" right now, but maybe "Yes" in the future. In this new era of AI technology, great poets, no matter whether he is an AI or a human, a human-aided AI or an AI-aided human, will always come up with original ideas by thinking out of box, and Bernstein's experiment of cooperating with AI to seek for more possibilities in

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1   See Du Yu and Zhang Ziming, *AIGC: The Era of Intelligent Creation*, Beijing: China Translation Publishing House, 2023, 363.

poetry writing will be one of them. When we are fascinated by or ridicule poetry written by AI, we may also reflect the success or failure of human poets, and in the future we may celebrate the success or ponder over the failure of poetry, no matter whether it is written by AI poets or human poets. This is of the great value of the development of AI poetry. I would end here with the title of the AI poetry collection by Bernstein and Balula, poetry has no future unless it comes to its end.

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