

Art, Science and Good Life in Schopenhauerian System

May 10, 2020

In the infant age of human civilization, science and philosophy were closely bundled together. Great thinkers were not only devoted to philosophical thinking but pioneered in science of their age as well. Aristotle, for example, dominated physical understanding of motions for almost 2000 years before the age of Newton. However, as knowledge accumulates over history, disciplines became increasingly specialized and therefore detached from each other. Science and philosophy are no exceptions. In philosophical literature of the 19th century, we find aesthetic experience highly recognized as what brings forth happiness, truth, the ideal society and overall a good life. Science, on the other hand, is regarded by many as inferior to art. The paper focuses on the problem within Schopenhauerian system. For Schopenhauer, contemplative cognition is an important concept: it is recognized as the only way for us to briefly find peace and the true well-being in our life of unceasing suffering. While art facilitates contemplative cognition and artistic genius are the ones with prevalent capacity for contemplative cognition, science is believed to be out of its domain. Our discussion is organized as following: Part I reviews the value of art and science with respect to contemplative cognition; Part II argues that the same value of art can be found in science; Part III discusses the question whether artificial intelligence today can be regarded as a Schopenhauerian artistic genius.

I

In Schopenhauerian system, will is what underlies everything; our ordinary cognition, which is in service of will, brings us unrest and suffering. Schopenhauer has a dualistic view of the world. On the one side, the world is representation. The conceivable world 'exists only as representation, exclusively in relation to something else, the representation being'. On the other side, the thing-in-itself of the world is will, the endless, groundless striving. The world as representation is the objectivation of will. Such objectivation is mediated through Platonic Ideas, which are models to imitate for individuals. Schopenhauer believes that 'originally and essentially, cognition is entirely in service of the will'. For Schopenhauer, the immediate object of cognition, as well as our cognizing organs, such as our nerves and brains, is objectivation of the

will. In ordinary cognition, the subject follows the principle of sufficient reasoning and cognizes the object as individual. Such cognition is entirely in service of the will. It cannot go beyond viewing the objects as individuals, because it cannot surpass the temporal, spatial and causal relation of the object to other objects and to one's own will: only through the relations, can the object be 'of interest to' the subject and be connected to will. The stage of ordinary cognition is both shallow and painful: the object of the cognition remains in appearance rather than the essence; the subject of the cognition, as filled with willing, is in a constant state of suffering. Schopenhauer believes that 'all willing springs from need, and thus from lack and thus from suffering'. Only occasionally, our willing can be fulfilled, yet the fulfillment is brief while the desire is long-lasting. Even the satisfaction from fulfillment is only illusory: the fulfilled desire will be denied, and new desires will rise. In a word, our endless striving can never be satisfied: we can never have last happiness or peace.

We human beings, however, have the privilege of momentarily releasing our cognition from its servitude to will and gaining brief respite from our suffering. The so obtained will-free state is what we call contemplative cognition. In contemplative cognition, the subject is a will-less self and the object is the Idea. In terms of the subject, it is no longer concerned about the relations following the principle of sufficient reasoning. It has therefore set aside its inter-connection with its object and ceased to view the objects from their relation to its own will. Such a subject ceases to be mere an individual, and becomes the 'pure, will-less subject of cognition'. It is only when one raises oneself to be such a subject that one is capable of cognizing Idea, the object of contemplative cognition. Schopenhauer believes the will objectizes itself into representation through the Ideas: Idea immediately and adequately objectizes the will and manifests itself into the multiplicity of individuals and details. Idea stands outside time, space, causality and all the forms of the principle of sufficient reasoning. It is eternal, unchanging and exists in isolation of all relations. In the state of contemplative cognition, we stop to ask Where, When, Why and Wherefore and is engrossed in What. Here, the object is purely the representation of the subject and the subject is absorbed in the object. For Schopenhauer, contemplative cognition is both deep and pleasant. The pleasure of contemplative cognition arises both from its subject and object. From a subjective perspective, the pleasure comes from the peace of mind. As a pure, will-less subject of contemplative cognition, one views things free from their relations to the will. Such a disinterest and purely objective experience lifts us out of our endless striving and grants us a momentarily respite from our suffering. On the other hand, the objective pleasure of contemplative cognition arises from the apprehension of the Ideas. This is particular true when the object of contemplative cognition are animals or people, whose Ideas are 'the clearest manifestation of the will'. Objective apprehension of such Ideas helps us explore the multiplicity of the forms, as well as understand the essence of the will. As truth and knowledge are conveyed within, apprehension of the Idea adds depth and cognitive value to the pleasure of contemplative cognition. It is worth mentioning that the same idea of absorption between subject and object echoes in the writing of Zhuang Zhou, an ancient Chinese philosopher. As a pessimist as Schopenhauer, Zhuang Zhou also believes that the state of absorption is our way towards happiness in this painful world. From here we can sense the same wisdom exists in both Eastern and Western philosophy to escape from suffering and live a good life.

Schopenhauer believes that art facilitates contemplative cognition whereas science is within the domain of ordinary cognition. As ‘art repeats the eternal Ideas grasped through pure contemplation’, the peaceful, quiet and will-less state of mind captured in art invites its spectators to enter the same state. Also, the content of art is pure Idea, which makes the Idea more readily encounterable than in reality or in nature. Nevertheless, Schopenhauer recognizes that contemplative cognition can be intuited by nature or life as well. In his own words, ‘the nature of aesthetic pleasure is the same whether it is called forth by a work of art or directly through the intuition of nature and life’. When it comes to science, Schopenhauer believes that it is within the domain of ordinary cognition. It is acknowledged that the object of science differs from ordinary cognition as it ‘assembles particulars under universals’. However, Schopenhauer believes that in science, cognition does not go beyond the relations of its objects, as in ordinary cognition. Is it true for all disciplines of science? Schopenhauer categorizes science into mathematics and natural science. The latter is further categorized into morphology and aetiology: morphological sciences focus on static forms, with examples of botany and zoology; aetiological sciences study alternations and their laws, with examples of physics, chemistry and physiology. It is evident that the theme of aetiology lies in causal relation. Mathematics as in Schopenhauer’s understanding can be understood as study of relations as well. Schopenhauer understands mathematics as what ‘specifies “how many?” and “how large?” with the most exacting precision’. Of course, mathematics today goes far beyond merely counting and measuring. But if we limit its scope to counting and measuring, nothing is done beyond comparing an object to an external concept of unit. Such comparison remains in the domain of relations. As for morphology, the study of static forms, its theme seems to be farther away from relations compared with other science. While it is not explicitly explained in the text, we can probably understand morphology as study of relations in the following manner: although the goal is to study static forms, the method taken is to examine the resemblance of individuals and classify them accordingly. The path taken by morphology from individuals to general is to examine the innumerable relations between innumerable individuals, which is not the same path taken by art, where a vanishingly small object is taken to be the representative of the whole. Morphology therefore stays in the realm of relations. It is also not made explicit in the text whether science can intuit contemplative cognition. But considering that Schopenhauer believes ordinary cognition is the only mode suitable for the service of science: even if any moment of contemplative cognition is intuited by science, that moment is unsuitable and irrelevant to science, merely being a moment of distraction.

II

The state of contemplation and ‘losing oneself in the object’ is by no means foreign to scientists. There is a story of André-Marie Ampère, a French physicist and mathematician, the namesake of the international unit for electric current, ampere. The story goes that Ampère once saw a ‘blackboard’ on the street and started to write equations on it. Then when the ‘blackboard’ started to move, Ampère followed it trying to finish his equations. Only after the ‘blackboard’ sped up and became too fast for him to catch up, did he stop and realize that the ‘blackboard’ was actually the back of a carriage. Stories like this might be narrated in an exaggerated way. But what is depicted here is the contemplative moment of absorption in scientific study.

Scientific contemplation does not measure up to the definition of Schopenhauer for contemplative cognition, however, in my opinion, scientific contemplation has the same value as contemplative cognition. Schopenhauer believes that the subject of contemplative cognition abandons the principle of sufficient reason, but the subject of scientific contemplation thinks rationally following it. Also, the object of contemplative cognition is the Idea standing outside relations, but the subject of scientific contemplation, as in scientific cognition, remains within relations. However, we may argue that scientific contemplation can arouse exactly the same pleasure as Schopenhauerian contemplative cognition and therefore has the same value. Recall that the subjective pleasure of contemplative cognition lies in the peace of mind of the pure, will-less subject and the objective pleasure comes from the cognitive value of apprehending the Idea.

Viewing from the subject, the subjective pleasure is achievable in scientific contemplation as the subject is free from its specific desires. If we follow Schopenhauer's argument, it is true that the subject of scientific contemplation is not completely disinterested and not free from all its will, because its object in the relations between things 'in the end always aims at their relation to our own will'. But even in contemplative cognition, the subject cannot be completely disinterested and will-free as well. In aesthetic experience, for example, the pleasure of contemplative cognition can evoke our will to get engaged in art again. Our very first aesthetic experience may start off as a disinterested one, but the interest generated within will inevitably link every single aesthetic experience after back to our will. This is not a surprising observation in Schopenhauerian system considering that will underlies everything. It is clear that for Schopenhauer, contemplative cognition is a repeatable process in aesthetic experience, as he does allow an artist to produce more than one art piece in his lifetime. Therefore, if we are to agree that the subject of aesthetic experience is will-free, then we must interpret the 'will' here as individual, specific desires. And we must agree that subject with a general will, such as a desire for art, can be peaceful and free from its suffering. This is exactly the same case of the subject in scientific contemplation. In scientific contemplation, the individuality of the subject is highly suppressed as all individual, specific desires are abandoned when one is engrossed in science. In fact, individuality of the subject, along with all its desires, must be suppressed in scientific study.

Because a valid scientific result must stay independent of the subject such that anyone follows the same experiment steps or the same reasoning steps should come to the same exact result. What remains in the subject then is only the general and universal will to observe, to understand and to reason. Therefore, we come to the conclusion that, as in aesthetic experience, the subject in scientific contemplation is 'will-free', and that the subject can gain a respite from its endless suffering and enjoy a moment with peace of mind in scientific contemplation. As for the object of scientific contemplation, it goes beyond specific relations and stands as the Idea of relations, or in Schopenhauer's word, the Idea of 'the universal forces that manifest themselves according to natural laws'. It is true that science starts with specific relations, but as science 'assembles particulars under universals', the relations under its study are also meant to be teared from particular appearance and become a universal form of relation. At the stage of scientific contemplation, the objects under consideration has already been risen to a universal form, in most cases described as mathematical models. As we mentioned before, mathematics today does achieve much more than counting and measuring. So are the relations between objects. The relations studied in scientific contemplation is no longer the particular relation itself, but the general relation of a type. Of

course, relations are always changing in their nature, but the generality of the general relation of a type comes from that it provides a static mode of changing. Such mode of changing then particularizes itself into the multiplicity of changing in individual relations of the type. Under the system of Schopenhauer, the general relation of a type as in our discussion must root from will as well, as will underlies everything. Therefore, the general relation of a type, as a media through which the will manifests into individual and particular relations, is the Idea of relations. This is precisely the type of Idea besides the original forms of all nature bodies for Schopenhauer, 'the universal forces that manifest themselves according to natural laws'. Force in its essence is equivalent to relations: any force cannot exist without two ends in a relation and any relation cannot be valid without any interacting forces. Therefore, the profound meaning and interpretive richness of apprehending the Idea can be found in the object of scientific contemplation as well. My conjecture can be further supported by the feeling of absorption in scientific contemplation: There is no fundamental difference between scientific contemplation and contemplative cognition, as in both cases, the object is purely the representation of the subject and the subject is absorbed in the object. Therefore, I conclude that scientific contemplation has the same hedonic and cognitive value as contemplative cognition.

Following my conjecture, science can be recognized as of the same value as art within Schopenhauerian system, though their approaches and audience are different. Recall that the value of art lies in its conduciveness to contemplative cognition. Scientific contemplation is to science as contemplative cognition is to art, and the value of science comes from the moment of scientific contemplation it induces. Therefore, science is essentially of the same value as art. Yet the approaches in art and science towards contemplation is different. Art presents the Idea as its object, and in so doing invites the subject to abandon all individual wills and enter the state of contemplative cognition. Science, on the other hand, requires the suppression of individuality from the very beginning. The subject, while following the universal law of reasoning, is led to go beyond particular relations and raise them to the Idea. In a sense, the path of science is more immediate and internal than art, since science has its starting point in the subject and art in the object. Art and science are also different in their audience, as they have different requirements for talent and techniques. Artistic creation requires both innate talent and acquired techniques.

But from the reception point of view, according to Schopenhauer, the inborn faculty of appreciating art and beauty resides within everyone. Science, on the other hand, requires training for any level of participation. Only when one is equipped with sufficient tools and techniques, is it possible to dive down into scientific study and to the state of scientific contemplation. As what Issac Newton says 'If I have seen further it is by standing on the shoulders of Giants', a profound understanding of preceding results and the capability of utilizing them as tools are crucial to any scientific study. However, the energy and talent required for such training present as a barrier for the general public to experience the pleasure of scientific contemplation. Such barrier exists in particular for Schopenhauer, as made evident by his understanding of math as mere counting and measuring. In a word, science has limited audience whereas art is easily accessible for everyone.

Schopenhauer believes that art is the work of genius. For Schopenhauer, the essence of genius is in his capability of maintaining the state of contemplative cognition. It is true that every human being can liberate his cognition from will and enter the state of contemplative cognition. However, for the majority of us, such state can only last momentarily. Geniuses, on the other hand, are the ones with an excess of cognitive power, an amount far more than required for serving individual wills. When freed from will, such a degree of cognitive power can clearly capture the vague and obscure thoughts of the Idea. For them, the state of contemplative cognition is still temporary, but not momentarily: they can remain as pure, will-less subject long enough so as to repeat the contemplation of Idea in the work of art. Geniuses are 'the clear eye of the world' and 'the bright mirror of the essence of the world'. They have an innate talent of relinquishing their personality and being perfectly objective. And they have acquired skills of repeating the Ideas in works of art, to 'lend this gift to us and allow us to use his eyes'. The importance of objectivity in Schopenhauerian definition of the genius leads us to consider the possibility of a blend between modern science and art within his system. The question is: given the developmental stage of science today, can a machine be considered as an artistic genius? When thinking outside the Schopenhauerian system, the question may appear to be obvious and less interesting. From the viewpoint of Hegel, for example, the answer is absolutely no. Because for Hegel, self-consciousness is the key in production of art, and any machine, to this date, has not yet developed that level of intelligence yet. Paintings produced by machines may still be considered as art for Hegel, but the artist must be the human being who operates the machine. The role of machine here is no more than that of a pen. From the viewpoint of the general public, a machine can hardly be considered as an artistic genius as well. In general opinion, artistic geniuses are the ones with strong personality, individuality and subjectivity, the ones who break the conventions and think out of the box. But a machine, on the contrary, is literally a 'box' itself: it can only operate following its built-in program and never beyond that. But because Schopenhauer finds the essence of genius in their objectivity, and because of the similarity between objectivity and the rigidity of a machine, the question of whether a machine can be regarded as an artistic genius becomes interesting in Schopenhauerian system and therefore becomes worthy of our discussion.

Let's now focus our discussion on a specific machine: a style transfer artificial intelligence (AI) that has learnt how to draw. In general, AIs are machines designed to mimic human cognition. This specific AI that we are interested in is designed to produce images that transfer the style of an image to the content of another. Fig 1 (a) (b) shows how the style transfer AI is built and Fig 1 (c) presents some of its paintings. The basic architecture of the style transfer AI is an artificial neural network illustrated in Fig 1 (a). As shown in this diagram, information passes from the input of the network on the left to the output of the network on the right, indicated by the arrows. We first pretrain this model of neural network with classification tasks, for example, to tell dog pictures from cat pictures. After pretraining, the model has learnt to extract features of the image at each of its layers. Next in the image producing step demonstrated in Fig 1 (b), three images are input into the pretrained model parallelly: content image (top), generated image (middle) and style image (bottom). At the beginning of image producing, generated image is blank. We record features output from each layer and define content loss and style loss over these features. The generated image is then modified in the second training process to minimize the sum of content loss and

style loss. Fig 1 (c) presents the examples of generated images at end of the image producing step, together with their corresponding content and style image.

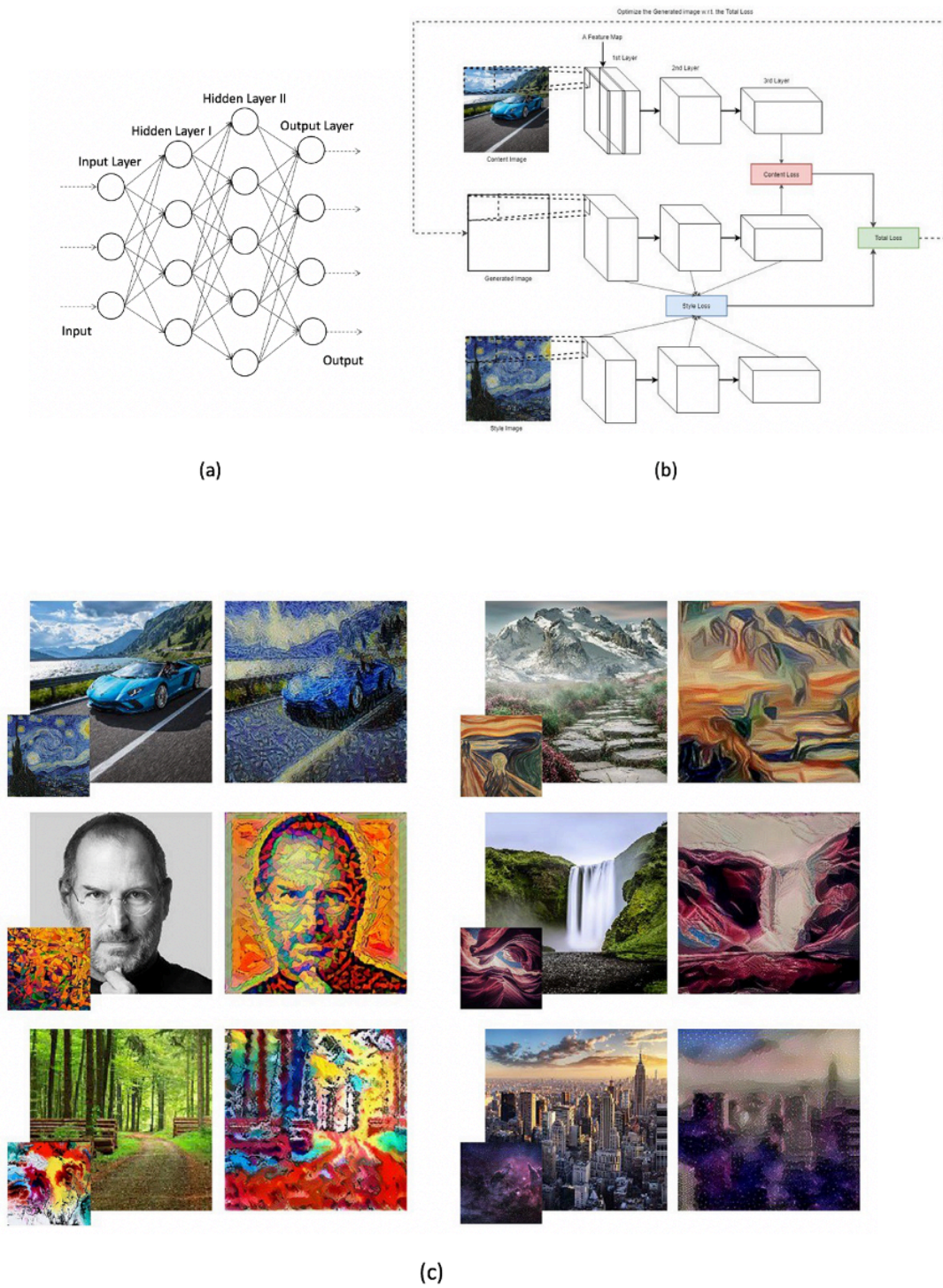


Figure 1: Illustration of structure and performance of style transfer AI [1]

Can this style transfer AI be considered as a Schopenhauerian genius? To understand this question, we must start off with discussion of whether the style transfer AI is purely objective. As a machine, it has only one mode of cognition and cannot switch between modes: it can only operate in one way following its built-in program, regardless of whatever is presented to it and whenever, wherever it is presented. Therefore, it can be either purely objective or partially subjective. To see whether the AI is purely objective, we need to first understand if it has its own individual will. Recall that both in pretraining and image producing steps, the AI is designed to minimize a certain loss function. Can its goal of minimizing a loss be considered as its will? Metaphysically it is for sure an objectivation of the will, as will underlies everything in Schopenhauerian system. Epistemologically, there are similarity and difference between the AI's goal and Schopenhauerian will. On the similar side, both are underlying tension that immediately and inevitably expressed in the action. On the different side, Schopenhauerian will is endless and can never be satisfied. The AI's goal of minimizing a loss, however, is specific and achievable: it stops its 'striving' once the loss is minimized. If we consider its goal of minimizing a loss as its will, then the cognition of AI is completely in servitude to its will. In this case, the style transfer performed by the AI would be, in Hegel's word, a process 'to impresses the seal of his inner being' and the AI would be purely subjective and far from being a Schopenhauerian genius. If we do not consider the designed goal of AI as its will, then at least its cognition is free from its own will, because whether or not it has its own will besides the designed goal, and whatever its will might be, the goal of minimizing loss is what solely determines the AI's cognition. But, even in the case where the style transfer AI is free from its own will, it might not be completely objective as well: its whole cognition might be completely in service of its designer's will that objectivized in the designed goal of AI. To deciding what is the case requires understanding of the nature of the training process. Are we transferring our own will to the AI in training, in which case, the AI would end up being merely a container of our own will, and nothing but our own subjectivity can be obtained in the produced image? Or is it the case that in training, we give the style transfer AI the eyes to see the world as well as the capacity to percept information, in a way that is not fundamentally different from how a mother raises her baby? Let's assume for now that the style transfer AI is purely objective, does that mean it is a genius then? Remind that being objective only meets one of the requirements from subject side for contemplative cognition. For the style transfer AI to be a genius, it should also be able to cognize the Idea from individuals. After all, genius is 'the bright mirror of the essence of the world' but a mere plain mirror is not a genius. Whether the style transfer AI is a genius, then, depends on what it has learnt from training. If what it learns from classification tasks in the pre-training step is how to extract Idea from individuals as human genius do, and what it learns in the image producing step is the artistic skills presented in painting, then the style transfer AI is a genius. If what it learns in the pre-training step is to compare and classify individuals as in botany and zoology, and what it learns in image producing is merely to mechanically transfer from particular to particular like a carnival mirror, then the style transfer AI is not a genius and its work cannot be regarded as work of art. All in all, lots of questions need to be answered before we can fully understand if style transfer AI can be a Schopenhauerian genius and further discussion of those questions is out of the scope of this paper. Personally speaking, I tend to believe that the style transfer AI is perfectly objective but at current stage, it does not go beyond classifying through comparison and mechanically transferring from particular to particular. Yet in the future, with the development of computer science, AI might rise to be a real artistic genius, a versatile and even omnipotent one, as it can capture the Idea from anything, and it is skilled in any artistic technique that has ever been developed. If that day ever come, it would be a total satire for Schopenhauer, as abstract

thinking and logic reasoning, those believed by him to be root of our suffering, become our ultimate source of art, pleasure and therefore a Schopenhauer good life.

Conclusion

In this paper, we discussed the value of art and science in a good life for Schopenhauer. Schopenhauer believes that in ordinary cognition, we suffer from our endless will, whereas in contemplative cognition, we are momentarily freed from our will and suffering. Art is what facilitates contemplative cognition, but science is within the domain of ordinary cognition.

However, we show that taking scientific contemplation into consideration, we can find the same hedonic value as well as cognitive value of art in science: the subject in scientific contemplation is free from individual specific desires and the object is the Idea of universal forces. Therefore, science plays the same role as art for a good life, although its approach and audience are different. In the end, we introduce a style transfer artificial intelligence. We discuss through a series of questions whether it can be regarded as a Schopenhauerian artistic genius. Regardless of the answer to the question, science and art are increasingly integrated into each other today. During the global pandemic of COVID-19, virtual concerts like *One world: Together at Home* and Yo-Yo Ma's *Song of Comfort* show how an integration of art, science and technology can bring us together though we are forced to be physically apart. Today, we turn to science for cure and to art for relief: both of them support us during this tough time, as well as prepare us for a better future, in the same way as they companied us through all the ups and downs in human history.

[1] Source: <https://towardsdatascience.com/light-on-math-machine-learning-intuitive-guide-to-neural-style-transfer-ef88e46697ee>