

GPT-OA: Generative Pretrained Treatise—On Architecture

EMILY PELLICANO

Syracuse University School of Architecture

CARLO STURKEN

University of California Los Angeles

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Technological advancements throughout the industrial era have created more efficient, more economical, and safer machines to aid – and often replace – human operations. Each industrial advancement radically changes social, political, economic, environmental, and even linguistic conditions. Each technological turn has transformed communication between physical and intellectual entities shared by humans. Recent advancements in technological language models have made artificially intelligent machines, specifically *Generative Pretrained Transformers (GPT)*, a potential active participant in the creative process. What does it mean to transfer creative responsibility to artificial intelligence? Is *GPT* the death of the author or the invention of a new author? This project explores language in machine learning and the role of the author/architect within the creative endeavor of architectural discourse.

GPTs are artificially intelligent text generating machines that possess the capacity to influence language patterns, create new hybrid languages, and as a result influence human creativity and hermeneutics. *OpenAI GPT-2* is pre-trained on a dataset composed of 8 million common web pages.¹ The use of a variety of web pages implies a certain degree of diversity, theoretically capturing a wide range of formal and informal social, cultural and economic language samples. However, these models are authored by humans, who are responsible for selecting sources for the training data, they are therefore bound to harbor a degree of implicit bias. This is surely to be anticipated when the datasets include web based sources known to contain the best and worst of human language sentiments. While the *GPT-2* model is competent at predicting the next words in a pattern of general language, when engaging in a specific discourse that may not be well represented in the training, another level of ‘fine tuning’ is required.² Seeking an explicitly architectural discourse, we have fine-tuned a model on classical architectural treatises from Alberti, Vitruvius and Palladio to set a deeply canonical architectural context, and diversified that field with text depicting accounts of psychedelic experiences to invoke a contemporary, extra-ordinary tone within our processing logic.

Currently, the public may access these open-source models via web-based interfaces such as *GitHub*³ or *Google Colaboratory*,⁴ both allowing for real-time collaboration, editing and shared development of software. Creativity is neuroscientifically accepted as either a combination of existing thoughts, the exploration of ideas beyond what is existing or assuming that existing ideas are wrong and transforming reality accordingly. Traditionally assumed to reside within the human brain, creativity may now belong to a wider network of ‘ideas’ to be combined, explored or transformed via computationally simulated neural networks.

A number of parameters are established at the outset of the text generation process, selecting the ‘length’ of the output (number of words), the ‘temperature’ (which establishes how close the output adheres to a ‘normal’ response), the number of ‘nsamples’ and ‘batches’ of output generated, as well as the ‘prefix’ (which we are referring to here as the ‘human-input’).

The theoretical treatise, *De Architectura* by Vitruvius, stated that architecture requires the “*interaction of practice and reason...a larger body of knowledge inevitably linked to the social, political, economic, and environmental context of its making.*”⁵ In this Vitruvian spirit, our project updates the architectural treatise for the Fourth Industrial Revolution by operating as a collaboration between human and machine. Similar to literary works such as *Pharmako-AI*⁶ and *1 the Road*⁷ which employ *GPT* models to generate contemplative and reflexive texts, we have prompted the historic treatises in a conversation with a broad range of contemporary architectural thinkers, peering into the space between a body of canonical knowledge and a contemporary context of thinking that is tied to contemporary social, political and economic and environmental issues.

Creativity is no longer an act of anthropocentric genius originating in the privacy of the human brain. Natural language models rely on a collective language, yet blur the line between subject and object, the one and the many, the conscious and the unconscious. The role of the author is blurred with that of the editor. The human-author is aware that the machine-author does not possess conscious construction of narratives, the ability to discern truth from false, or have accurate world-modeling potential. It may be that precise intersection where the true

```
gpt2.generate(sess,
length=200,
temperature=1,
prefix="I grew up in a country where the architecture was designed to
oppress one group whilst enabling the other to thrive.",
nsamples=5,
batch_size=5):
```

Input:

I grew up in a country where the architecture was designed to oppress one group whilst enabling the other to thrive. - Wandile Mthiyane

Output:

I grew up in a country where the architecture was designed to oppress one group whilst enabling the other to thrive. The mountains were scenery and not of any great deal; rather, they stood to my training as great scenery props. When I looked down at the floor of the faces I could see nothing, shape or form, but only light and color. That the books were chairs and not shelves I could see but clay in front and none at back; neither the rack nor the table, but the absence of any overprinted back of any chair. The texture of the chair and the appalling lack of any decently done muscle art help me to my English level; the only decent muscle art I know of is Movements and not Words. But then, maybe my humble student could show me

A woman in a Early Christian Church bodice and some sketches of some Mass. Three months after this story was published I received an order for a work in the county mail. The mail was very heavy and, so to expect, the ordering edition of The Dresden Encyclopedia of Late Antiquity was rushed

===== I grew up in a country where the architecture was designed to oppress one group whilst enabling the other to thrive. The children of the land taught us the ropes by which school was designed, the mescaline taker, by means of whom to claim credit for your intellectual effort is like to be one with an ascending mist in the clouds. You can't be black and white because you didn't teach me the ropes, you can't be straight because you didn't know how to read or write, or, worse, because you couldn't be gay because of the misconceptions about homosexuality that women and gay men have about each other. But I, who am obviously a poor artist, can't be bothered with anything that isn't deeply negative. I paint love, light, sound, color, and texture in extremely liquid shades of pink, merlot, and purple. (There I showed you, essentially, that the basis of bread is a plant that grows inside a sachet of flames.) And, boy, how often do you see Rose painting draperies in the background: ghostly apparitions of ===== I grew up in a country where the architecture was designed to oppress one group whilst enabling the other to thrive. The children of screen and

=====

MODEL PARAMETERS

```
gpt2.generate(sess,
               length=200,
               temperature=1,
               prefix="input",
               nsamples=5,
               batch_size=5
              )
```

Figure 2. GPT-2, Standard Model Parameters for all Inputs.

potential lies, in the dissolution of the authority figure through the diversification and proliferation of authorship.

The examples included demonstrate how the tool surpasses mere utility and enters into an act of creativity, engaging in an intersubjective discourse between human, technology, and language. The ‘redacted’ text-images selected for this submission exhibits the human-author input (in bold font), the machine-author output (the body of text edited by the human-editor), and the human-editor filtration (the redacted text). The input parameters, represented by the coding script at the beginning, allows the human-author to determine the processing characteristics of the artificial-author. In addition, each output (the body of text) is a unique result of a “prefix” (the human-author input) that prompts the machine-author to write. The few images selected are a small sample of the hundreds of pages generated for this exploration, a collaboration between human and machine creativity that serves as a provocation to the discipline to consider the potentials of engaging AI as a computational collaborator, capable of unexpected and provocative synthetic opportunities.

In the months since abstract submission for this project, *GPT-3* has been released to the general public, promising exponentially ‘better’, more ‘natural’ language generation, it’s human-likeness as a standard of success driven by industrial marketability. Here, our goal is not to replicate ‘natural’ or ‘typical’ human responses. Instead, we propose that the potential for creativity resides in the extension of the latent space of mis-interpretation, mis-appropriation and the unpredictability of the less sophisticated *GPT-2* models. To that end, this project is being further developed by using open source algorithms to generate images prompted by the *GPT-2* text output generated as a creative collaboration between human and machine, further blurring the

INPUT (Human-Author Input)

“I grew up in a country where the architecture was a group whilst enabling the other to thrive.” – Wang

OUTPUT (Artificial-Author Output & Human-Editor Filtration)

The mountains were scenery and not of any great to my training as great scenery props. When I look at the faces I could see nothing, shape or form, but that the books were chairs and not shelves I could see and none at back; neither the rack nor the table overprinted back of any chair. The texture of the lack of any decently done muscle art help me to see a decent muscle art I know of is Movements and not humble student could show me A woman in a Early and some sketches of some Mass Three months after

Figure 3. GPT-2, Standard Input-Output Example.

boundaries of language, image, human, machine, author and editor (Figures 9 and 10).

Speculation on the ‘use’ of this technology is in its infancy. In fact, the prospective exploration presented here has unearthed more questions than conclusions about the role of machine-human-authorship. However, one conclusion is clear, a collaborative dialogue between machines and humans presents immense potential for an expanded creative process that moves beyond simple language and influences our conscious understanding of the world in which we exist. The excerpts exhibited here show the transcendental qualities of language unbound by indoctrinated learning whose stories described real, yet surreal, spatial and relational environments. With the presentation of this project, we intend for the narrative process to be an invitation to explore the possible boundaries between author/editor, human/machine, text/image, without prematurely prescribing a finite ‘usefulness’. As we approach the precipice of a collective knowledge whose future will be inevitably integrated by machine-human interactions, this exploration is not a means-to-an-end but a means-to-speculate a future collective creativity.

ENDNOTES

1. Priya Shree, *The Journey of Open AI GPT Models*: (The Medium, 2020).
2. Daniel M. Ziegler, *Fine-Tuning Language Models from Human Preferences*: (arXiv.org, et al, 2020).
3. Jeff Wu, *Open AI GPT-2*: (github.com/openai/gpt-2/blob/master/LICENSE, 2019)
4. Max Wolf, Max, *Train a GPT-2 Text-Generating Model w/ GPU For Free*: (https://colab.research.google.com/drive/1VLG8e7YSEwypxU-noRNhsv5d-W4NfTGce, 2021).
5. Marcus Pollio Vitruvius, *De Architectura: The Ten Books on Architecture*, trans. Morris Hicky Morgan: (1914; repr., New York: Dover Publications, Inc., 1960).
6. K. Allado-MacDowell, *Pharmako AI*: (Ignota Books, 2021).
7. Ross Goodwin and K. Allado-MacDowell, *1 the Road*: (Jean Boîte Éditions, 2018).

Input:
We present this rhetorical question as an introduction to contextualize the urgency of the contemporary condition to recognize the ongoing crisis palpable through intersectional failures across geopolitical social constructs, particularly within the architectural realm. - Matri-Archi

Output:
 We present this rhetorical question as an introduction to contextualize the urgency of the contemporary condition to recognize the ongoing crisis palpable through intersectional failures across geopolitical social constructs, particularly within the architectural realm. The present case is particularly puzzling because of its close similarity to DMT-taking by the late nineties, when its use had been quite uncommon in the surrounding landscape apertures, at least within the meaning of contemporary Western cultural terms, from the point-of-view of Native American spirituality. Beryl Hoffman argues, like Zarkov, that this lack of common origin is due in part to the fact that the culmination of all the experiences was smuggled into the city from Canada, where the story is told. True, Cushing Dock had probably never happened on a Saturday afternoon, but the sheer volume of potentially life-giving experiences seized in X. HOUSTON'S Zarkov's temple. And, yes, there were Native American rock concerts and festivals all over the world. But the epicentre of any given experience has always been Central, not wilderness wonderland, nor perhaps too properly the underground. ***** We present this rhetorical question as an introduction to contextualize the urgency of the contemporary condition to recognize the ongoing crisis palpable through intersectional failures across geopolitical social constructs, particularly within the architectural realm. Introduction the weeks leading up to and including the experiment are usually the most difficult. As Zarkov wrote, "the distinction lies not in the shapes and forms of the distinctions, but in the ability to distinguish within and without the constraint of traditional beliefs and images." But how much more difficult it is to distinguish between these self-validating forms of existence and the illegitimate and self-serving notions of existence that they inflict upon those who encounter them. Through these three conditions the unabashedly fabricated and the unquestioned are transformed into the most precious components of the organic pattern of consciousness. Ordinary consciousness is a continuous stream of disordered impulses. Unlike the patterns on the walls of a dressing room, their disordered qualities cannot be deduced from the texture of the deflected showers, or the color and shape of the clothes. Unlike the patterns on the walls of a dressing room, their disordered qualities cannot be deduced from the texture of the deflected showers, or the color and shape of the clothes. ***** We present this rhetorical question as an introduction to contextualize the urgency of the contemporary condition to recognize the ongoing crisis palpable through intersectional failures across geopolitical social constructs, particularly within the architectural realm. We see now that no attempt has been made to simultaneously visualize and explain, or at least to

capture in imagery, the tremendous effort which goes into each picture. What is left is a rambling bifurcated mess of brief and fragmentary reports, each more than ever superficial and unsubstantial. At root, there is just one substance-words, expressed or implied, encouraging, discouraging, sustaining, sustaining, sustaining! All these are extensions of one vast, double, and double textured pattern. As now know, from scholarly reports very recent in amount and quality, how, in incalculable cost and time-effective as it was to us, the Liantho powder we used, the next wave of experiments must have been a vast interlocking of variations-tortures, dreams, phobias, anxieties, pains, dreams, fears, imperfections, etc. All of these combined away at ***** We present this rhetorical question as an introduction to contextualize the urgency of the contemporary condition to recognize the ongoing crisis palpable through intersectional failures across geopolitical social constructs, particularly within the architectural realm. We conclude with some contemplation to suggest in the distant-distant future. Perhaps, ***** The limitations of human perception, along with the limitations of our technological brain, render us all too susceptible to the subtle but ever-present cues of the rapt. For too long we have let ourselves be distracted, too easily, by the contemplation of the sublime-of the flower arrangement or the textured landscape or the bilious richness of the human heart. Let there be a voice to lead us on solemn occasions. And perhaps, with permission, we can do just that. In the words of a hymn, the singing should be accompanied by a sort of chant that is, at the same time, a metaphor of the relieving power of alcohol; at the same time, with the lyric phrase, "Let us bear witness to the omnipotence of alcohol; we will bring about an end to the misery of wine-drinking. ***** We present this rhetorical question as an introduction to contextualize the urgency of the contemporary condition to recognize the ongoing crisis palpable through intersectional failures across geopolitical social constructs, particularly within the architectural realm. Placing oneself in his shoes, contemporary records before as a time before angels, before bushes was a tool of Brahma, before mantles were of Hui. Before mantles were doors, before rhomboid syllables were of rhubar. Before syllables were even invented, before man had invented the phonetic ***** The case is not so much a question of how to render Vishnu in the latest technological fashion, as a theological question. Does the language create a transcendence that remains unshakably Hindu even after the linguistic revolution? Does the language provide a base where linguistic rigor and the ambit of systematic reasoning approach the purest form of pure fact? If there is a language, what form does one seek? And what about the discoverer's? Surely a search for the language would reveal a language of revelation. *****

Input:
The quality of life in urban centers is determined by the principle of who can afford the resources and privileges, thus maintaining the social

Figure 4. GPT-OA, Pages 2-3 of 80.

inequality that we have today. - Tainá de Paula

Output:
 The quality of life in urban centers is determined by the principle of who can afford the resources and privileges, thus maintaining the social inequality that we have today. But this is also an uneven picture. Half the incidents in the narrative are representative of a large class of human society, the very middle class. But the class of women economists is the very top of the power. They make up most of the middle class. Moreover, the vast majority of women economists are women-neither rich nor powerful, but both. In this context, how significant is the enormous profit a company can make by selling one's self-portrait to a man for a penny-the maximum price a woman can legally allow herself, by herself, when selling her life-long habit of massaging her legs? For a society in which men outnumber women by a ratio of one-to-one in the matter of human relations, the answer is, on the whole, that a great many people will be able to extract profit from the massification of human worth. This sum will never be more than needed to pay for necessary hospital stays, t ***** The quality of life in urban centers is determined by the principle of who can afford the resources and privileges, thus maintaining the social inequality that we have today. As Beryl Hoffman said it in The God We Stopped. "The underdogs says it all! But this is neither practical experience nor even reflection. We live in a time and a place called Artificial Words, and we are all capable of thinking words as entities with common histories and lives drawn from all the past experiences. To be aware of these words as you walk out the door is like seeing. Being aware of the present moment as if it were a painting or piece of music. And to the extent that you can look-as if in a trance, all you have to do is crawl- out! The feeling is one of connection with the Other, of the composer, the musician, the mystic, and the shaman. But this is a personal, as well as a ritual, experience. The shaman can become aware of none of these things, and the experience is like trying to instill the bark of an oak tree into ***** The quality of life in urban centers is determined by the principle of who can afford the resources and privileges, thus maintaining the social inequality that we have today. As Marx wrote, the effective demand for human beings is not from the wages of war, but from the total price of their favorite luxury: "It is a general scarcity of those essential requirements of daily life, which are indispensable to survival." That the rule of law is no longer necessary to keep the world running makes no sense. The urge to do something for the common good does not motivate us to do anything for the common good. It is only when the state of crisis is threatening, the urge to do something for the common good, that we feel ourselves in a competitive position. The tendency is self-limiting, but it is not sufficient to say that because you hate me, you mustn't like me. You must feel free to say what you like, or else I will scare you into a sleep. You can't tell me that because you don't like me. I can't tell you that I don't love you, because that would be profoundly stupid. ***** The quality of life in urban centers is determined by the principle of who can afford the resources and privileges, thus

maintaining the social inequality that we have today. Meanwhile, people in lower-middle-class families live with their parents in high-tech enclaves of high-end apartments. And it is not just those families in the upper echelons of the food chain that are at the extreme end of the social spectrum. Today we see families with modest means of subsistence all across the Western Hemisphere. And those families whose means of subsistence it is men like the late Emilie Zenger, the psychiatrist, the scholar, the expert on hallucinations, the most successful speaker of German through language, the most effective therapist. Every individual is at his peak and the limit of his potential. But each may throw himself into the challenge himself-he who can practice the useful use of hallucinations effectively, regardless of position or background, ethnic or religious, sexual orientation or gender, sexual orientation not already agreed-upon but not yet cultivated, or who can sit at the extreme limit on his expressive power-and fail, if he does, he ***** The quality of life in urban centers is determined by the principle of who can afford the resources and privileges, thus maintaining the social inequality that we have today. In cities, everyone (including the rich) is guaranteed himself in some way or other. The poor, for example, can adopt the Asiatic dialect of cities and feel their urban pride by following the Erifodils of the aged (McKenna 1983; Gough 1985; Hardis, 1985). But in spite of the evidence linking suburbanification with natural selection, that most Rabid Citations of the Awake! wrote for (mostly good) men and women thinking of becoming labor, most of them (but not all) women, and a minority (about one-eighth of what it is reported to have boasted of yesterday) have been able to render an articulation (Da Vinci Code) such as the words they are asked to express-kings of awestruck hair, wearing white cravat musical instruments and, red-tipped, condescendingly, ***** who could not render an answer. *****

Input:
I have been always fascinated by the idea that emptiness is never empty at all, if you look at it insistently, but the space where life and emotions can be projected into. - Simone Bossi

Output:
 I have always been fascinated by the idea that emptiness is never empty at all, if you look at it insistently, but the space where life and emotions can be projected into. One always has been, even in the grave, a window or other structure of some sort that might be considered a symbol of some transcendent actuality. Was that what, in ***** I have been always fascinated by the idea that emptiness is never empty at all, if you look at it insistently, but the space where life and emotions can be projected into. The order of things in this world might be different, the beauty of the things they represented more beautiful, but the basic fact of human experience would still be the same: the unconscious mind would be play, but with more severe abnormalities of function and a more refined, but more honest attitude towards the universe. This is what mother Earth looked like at that time-a total vanish, a partiality that is, in every case, like utter feelbleness. But,

Figure 5. GPT-OA, Pages 4-5 of 80.



Figure 9. *A Jewel Enclosed Universe Of Neurons And Fibers.*



Figure 10. *The Graves Overlook The Landscape And Have The Same Shape.*