It’s Not a Room, It’s The Home I’ll Never Have

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

Humanity and architecture have been in a long dialogue with Utopia. Since Thomas More's publication in the 1500s, the term of "Utopia" has been adopted by architects, artists, and intellectuals alike, using it as either a point of contentious discussion, or as something to strive for. Within architecture, the application of utopia has been vast, from Boullée and Ledoux to the speculative architectures of Cedric Price and Superstudio in the 60s—70s. These utopias, despite the variances of design outcomes, all share a common denominator: the intent to design the ideal.

Using the architectural utopia as a framework, *It's Not a Room, It's The Home I'll Never Have* is a theoretical research and speculative design thesis that investigates the condition of Canada's housing crisis, entitled *The City of Rooms.* In the thesis, the role of critical utopias within architecture is explored through generative artificial intelligence (genAI) as a proxy for neoliberalist design and decision making. The work questions the self-iterative neoliberal trends, and envisions an optimizational utopia in which minimum dwelling units are the ideal response to the question of the housing crisis through a set of speculative images located in Toronto.

If the goal of the critical utopia is to examine how we live, then the current housing crisis that many major Canadian cities are facing can serve as an urgent case for such analysis; the alienating real-estate development, privatization, and profit optimization has continuously resulted in smaller and smaller living space and exacerbates the existing housing crisis. This problem stems from a set of neoliberalist policy changes in the 80s, where the Canadian government loosened tenancy protections, eliminated funding for affordable housing, and deregulated the financial sector. Lacking specific regulation to prevent this, the problem has evolved into a self-iterative system that propagates to this day.

Ultimately, the key impact of this research is to reveal and critically analyze the neoliberal techniques employed in the housing market in Toronto, while showcasing the beneficial use-case of speculative design when bringing the ideology to its logical, utopian conclusion.

Keywords:

Utopia, Critical Utopia, Neoliberalism, Artificial Intelligence, Generative Artificial Intelligence, Speculative Design, Minimum Dwelling, Architecture

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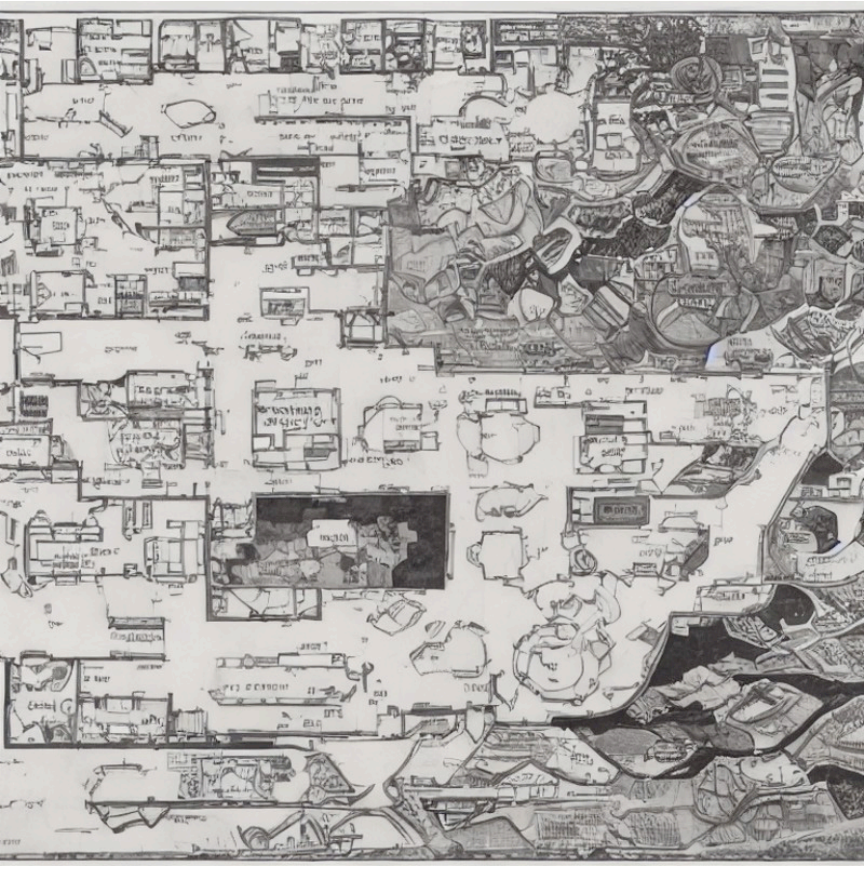
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INTRODUCTION

AN AI-ACKNOWLEDGEMENT

It would be negligent, when working with Generative Artificial Intelligence (AI), to be in dialogue with the tool simply, and uncritically. Especially within the context of neoliberalism, while AI has the ability to quite literally save lives (through various fields, such as medicine and diagnostics) it has equally the ability to destroy them. Addressed briefly in Chapter 4, not only do conglomerate corporations employ AI as a cost saving measure to replace the labourer in favour of a non-human you do not have to provide benefits for, but retained within it is an implicit bias that, if not monitored or carefully considered, can perpetuate inequitable and unethical attitudes. To this point, AI has already been used in positions of discriminatory roles from predictive policing systems to biometric facial recognition's inability to accurately identify visible minorities.[1] *We're just beginning to see the outcomes the tool's lack of ethical consideration in its training data, among which is the lack of consent of the actual data upon which these tools have been trained upon. Scraped from the internet, victims of image theft had provided these models with an unimaginable resource of data upon which it learns and iterates, with a lack of transparency of where or even knowledge that their visual data had been scrapped. So as this thesis works closely Artificial Intelligence to develop its narrative, I believe we must continue to advocate for transparency in data collection used for AI models while finding ethical ways to employ it.*

☰

1 Susan Leavy, Barry O'Sullivan, and Eugenia Siapera, "Data, Power and Bias in Artificial Intelligence" (arXiv, July 28, 2020), http://arxiv.org/abs/2008.07341.

DOES NEOLIBERALISM DREAM OF MINIMUM ROOMS?

Utopia is not usually explored in stable times. Conceptually, it was always brought forth when there was a strong ideological shift in society, when people were tired of the status quo and wanted change. As with art, idealism was always re-explored when new knowledge was uncovered in humanity. These explorations often result in ideas for the future. Interestingly, utopias seem to always reference a better future, yet it does so in a way that it only solves problems that are very current.

This is where the thesis starts, at utopia. It supposes utopia as a theoretical framework, and the current problem it solves is the increasingly dire housing crisis. While the city of Toronto is in the midst of a housing struggle produced directly from the neoliberalist policy of the 1980s, the resolution being heavily promoted is to build more. Neoliberalism pursues profit by neglecting affordable housing—an unprofitable model—and instead highly optimizes the floor plan for 'affordability,' instead minimizing the room to the most fundamental capacity for the individual while retaining the greatest profit. In this cyclical state of building for commodity, an existing evident problem that can be observed within Toronto are the increase of minimal effort and minimal quality condominium buildings being constructed in the city, with the ultimate goal of turning into investment properties. The longing for utopia grows stronger, as the problem of living grows more present.

In Neoliberalism's hyper self-generative state, Artificial Intelligence is used as a convenient tool to explore neoliberalist properties. The result is this adaptation of the minimum dwelling typology, as the run-away neoliberalist mechanism envisions this future with people living in smaller footprints and in rooms the force the co-living model to occur. This thesis therefore looks at the idea of minimum dwelling in three ways: one through the utopia and the ideality of living, the second through the neoliberalist perspective of its adoption and commodification, and through the third of efficient iteration as present through the procedure of Artificial Intelligence.

Through a set of speculative utopian images, generated in collaboration with AI, this thesis takes the perspective of neoliberalism, and envisions the feverish utopia it would produce if allowed to manifest totally, using AI as this analogy for a self-generative, self-iterative production of society. With generated neoliberal floor plans based off Toronto condominiums, this negative utopia gives suggestion on neoliberal principals of how we should live, and what it may look like. In the way that Artificial Intelligence hallucinates the production of outputs, so too does Neoliberalism, and this work showcases exactly how this may be true. This utopia explores space, explores being, and explores how we are to adjust to a system that is working actively against our favour.

METHODOLOGY

This thesis centres around two driving methodologies: the first is a way to explore the form of design through a primarily theoretical lens, without the intent of construction. In the instance of this thesis, the idea and tropes of utopia are greatly studied and analyzed to investigate why designing within a critical realm is important. In the execution of an 'anti-design,' this form of creative exploration becomes unbound from tangible realities, and this thesis explores how it can reveal things that traditional design would otherwise not reveal.

The second methodology centres on testing the process of design, rather than arriving at a final design outcome through the use of generative Artificial Intelligence. As genAI is a brand new tool, there are many limitations to it that comes with the territory of the new technology—not only is genAI in its infancy, and therefore still very unrefined, but we are also just beginning to uncover various workflows on how it fits into the process of design. Using Low-rank Adaptation (LoRA) and Stable Diffusion, this thesis aims to set up a set of testing protocols to leverage genAI's inputs and generative outputs to support a design project. Ultimately, with these processes, the goal is to discover how to extrapolate design insights from the tool, and by extension, how applicable it can be to the field of design.

A note in terminology: while I had made a deliberate effort to make a distinction between AI and generative AI, this project is primarily interested in exploring the generative aspect of Artificial Intelligence. As a result, in mentioning AI, unless explicitly stated, I refer to primarily as AI in its generative form.

OVERVIEW

In Chapter 01, I outline the core argument of the thesis and its methodology in communicating its position. Chapter 01 sets the premise of the thesis and setting some baselines before I delve into more detail in the later chapters.

Chapter 02 introduces the theoretical framework of the thesis: the utopia. It articulates its origin, begins to understand its dialectical nature while it investigates the common elements that defines utopia—the creative force of ideality, its tension with instability, and its useful nature for critique. It is within the utopia as a critique where this thesis finds its argument, which is explored in Chapter 03.

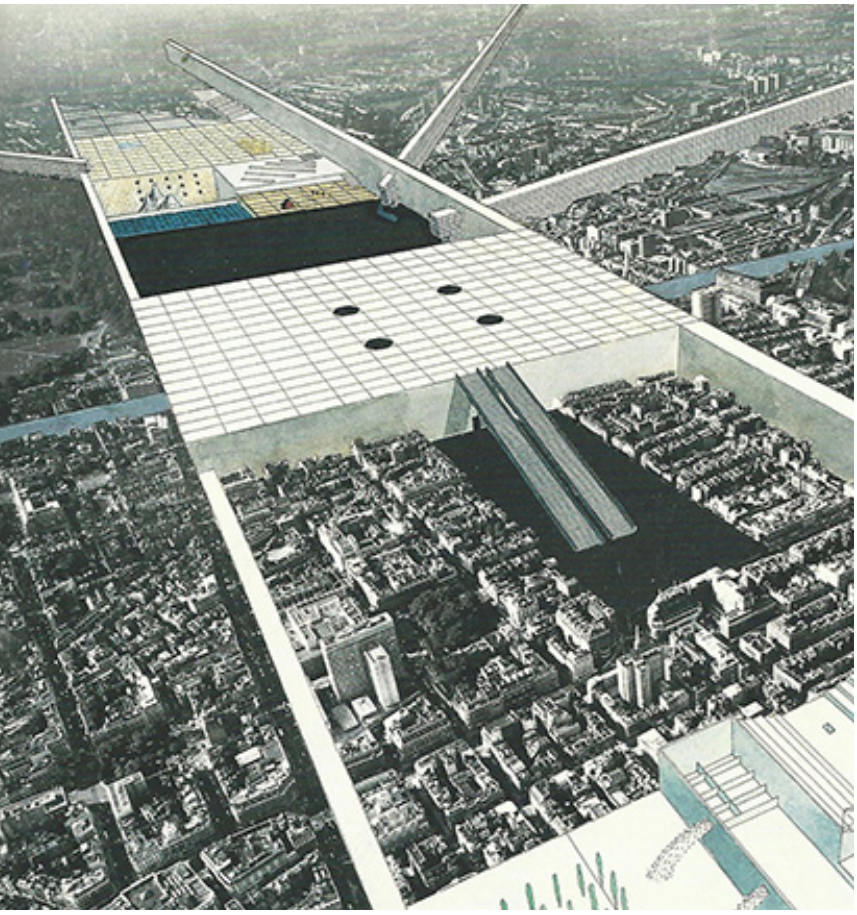
Chapter 03 presents the subject of utopia's critique: the neoliberalist agents that propagated Canada's current housing crisis. It expresses the mechanisms of neoliberalism, how its ideology has had and still is affecting Canada's housing market, and without proper regulation, how it will continue. With the governing ideology remaining strong, this chapter begins to propose the neoliberalist hallucination, in the form of a decentralized aggregate of humanity, only needing as much housing as they can afford while promoting the unfiltered building of more, to continue to prop up the market.

Chapter 04 synthesizes the previous theoretical chapters and calls to attention the usefulness of generative Artificial Intelligence within the Neoliberal Hallucination. With its self-iterative, decentralized nature and craving for the average, optimal output, Chapter 04 puts forward genAI as neoliberal's proxy, being able to act on its behalf to adopt the language of the minimalist co-living model. In this way, the true intentions of how we live is obfuscated, with genAI able to enable neoliberalism simply with the act of generation.

With the theory now in place, Chapter 05 is the showcase of the speculative design, The City of Rooms. The chapter describes the neoliberal hallucination, and explains the methodology of how the images were derived. It ends with a series of designs revolving around an absurdist plan generated from an AI dataset comprised of Toronto condominiums. The designs, presenting in both image and text form, describe this negative utopia with the genAI taking the role of the architect while I analyze and reflect its decisions in drawing.

Chapter 06 re-examines the argument of the thesis, restating the themes of the speculative design with all the context in place. It concludes with a reflection on the successes and shortcomings of the project, and its methodology.

02



2.1. Exodus, or the Voluntary Prisoners of Architecture: The Strip (Aerial Perspective), 1972, Rem Koolhaas, Elia Zenghelis, Madelon Vriesendorp, Zoe Zenghelis, Courtesy of MoMA.

THE CASE FOR UTOPIA

INTRODUCING UTOPIA

Utopia, as a societal concept, holds a unique position; while it seems to have a clear definition at first glance, upon closer inspection, utopia contains much more than it initially suggests. When referring to something as 'utopian', or as a 'utopia', what it describes usually shares two critical compononents: one, it is spatial, of which two, is an ideal place wherein everyone within is living well. This is true of all utopias, and in that contain underlying contradictions through which we may question their intentions. For example, the utopia envisioned by the Italian Futurists in the 1910s would encompass both futuristic idealisms of newfound Italian glory through machines and acceleration, as well as misogynistic inclinations and an overt glorification of violence.[1] Within their ideology, the violent rhetoric was necessary to propel the population to prosperity, to greatness. But is it still a utopia if it is not a 'utopia' for everyone within it?

This is the main issue of utopia—the definition is elusive, so the 'utopian properties' used shift subjectively in favour of the creator(s) using it. As scholar Lyman Tower Sargent says about utopia:

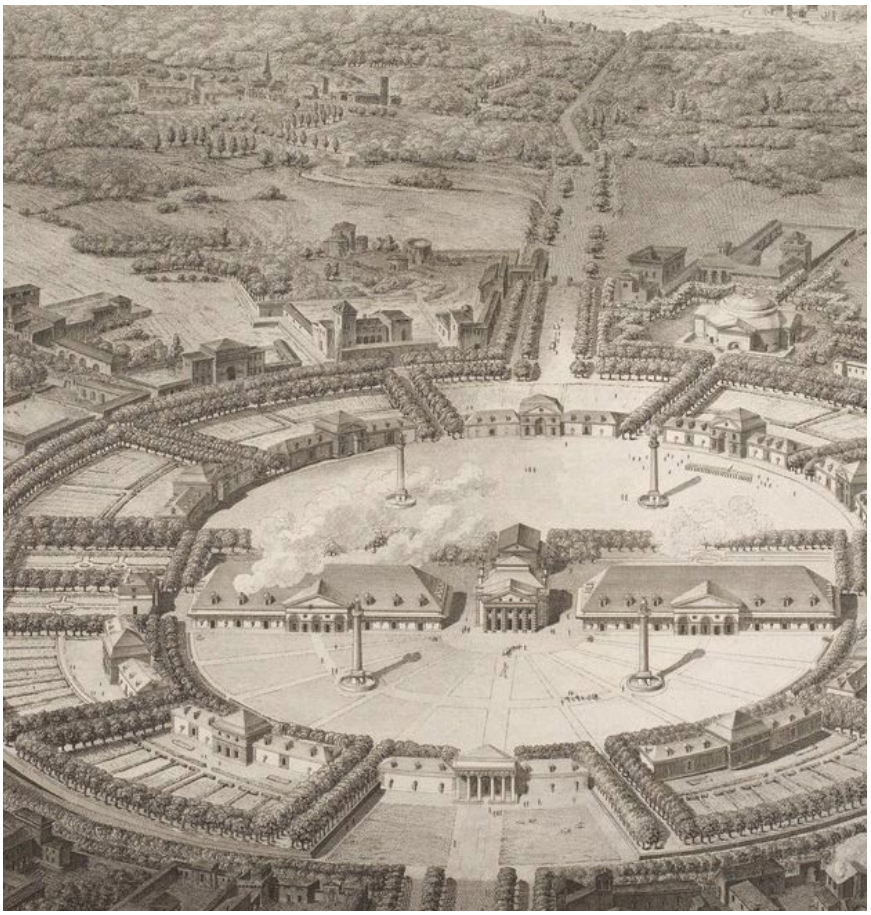
"There are socialist, capitalist, monarchical, democratic, anarchist, ecological, feminist, patriarchal [...] and many more utopias. [...] Utopia has an inherent contradictory nature."[2]

When the average person envisions utopia, it is imagined as a good place for all, where peace and happiness is achieved. However, Sargent brings to attention the reality that utopias are flexible enough to be envisioned by all, even those that have less-than-honorable intentions towards everyone who is to participate in their vision. Therefore, if a capitalist utopia is ideal to the capitalists that run it, or if a patriarchal utopia is ideal to the patriarchs that run it, then it quickly becomes clear that conceptualizing utopia is much more complex than using a simple unified 'ideal.' It's a convenient vehicle through which we may employ ideological views, whether these views promote equality, or aim to enforce existing power structures. Because of this, it is important to analyze what gives utopia this flexibility of contradiction and how we can use it to design when working alongside its properties.

☰

1 Ziauddin Sardar, "An Italian Vision of a Scientific Utopia," Nature 459, no. 7246 (May 2009): 510–11, https://doi.org/10.1038/459510a.

2 Lyman Tower Sargent, Utopianism: A Very Short Introduction (Oxford University Press, 2010), https://doi.org/10.1093/actrade/9780199573400.001.0001.



2.2. Ideal City of Chaux,1736—1806, Claude Nicolas Ledoux, Perspective View Ideal City.

CREATION

"Who is not a utopian today? Only narrowly specialized practitioners working to order without the slightest critical examination of stipulated norms and constraints, only those not very interesting people escape utopianism."

—Henri Lefebvre, The Right to the City[3]

Utopia can never be realized on their own, as it often pretends to do. It is always willed into existence by human agents. Categorically, it insinuates that humanity is unseemly and imperfect, and becomes a blueprint of redemption—a place where humanity is 'fixed.' However, utopia is something that humanity continuously reaches for, as it embodies everything that is perfect, everything we hope the world to be.

If utopia doesn't actually exist, where did the idea come from?

The word "utopia" was created in the 1500s by Sir Thomas More in his fictional book of the same name, where he narrates the discovery of an inhabited island that the citizens called Utopia. The Utopianists lived in a communal welfare state whose distinct features included the lack of private property, a homogenous and coordinated sense of visual identity as it translated to the built environment, a six-hour work day, amongst others.[4] Engaged in reflective conversation, More and Hythloday, two of the explorers of this perfect island, discuss this society and how it compared to the culture of 1500s England.[5]

Thomas More's Utopia is a great example of a perfectly crafted world with the intention to make a political statement. Each decision built into the world of Utopia was detailed as an explicit call to examine something in the real world. His intentionality extended to the term of 'utopia' itself being a carefully crafted portmanteau. The name is derived from the Greek word of 'eutopia', 'eu—' for "happy", and '—topia', for 'topos', or "place".[6] More proposes that this world is a 'happy place', or a place in which 'good' happens. More indirectly confirms this with the line below, where he illustrates the lack of audible distinction between 'utopia' and 'eutopia':

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3 Nathaniel Coleman, Utopias and Architecture (Abingdon [England] ; New York: Routledge, 2005), 41.

4 Richard Howells, "The Aesthetics of Utopia: Creation, Creativity and a Critical Theory of Design," Thesis Eleven 123, no. 1 (August 1, 2014): 41–61, https://doi.org/10.1177/0725513614543414.

5 Within the story of Utopia, Hythloday is the first person to discover the island, who recounts his travels and inspires the fictional More to visit the island himself. It is interesting to note that the name, Hythloday, means "talker of nonsense" in Greek.
Thomas More, David Wootton, and Desiderius Erasmus, Utopia (Indianapolis: Hackett Pub. Co, 1999).

6 Annette Giesecke and Naomi Jacobs, eds., Earth Perfect? Nature, Utopia and the Garden (London: Black Dog Pub, 2012), 10.

"Wherefore not Utopie, but rather rightely my name is Eutopie, a place of felicitie."[7]

Upon closer reading of Utopia, we begin to realize that all is not as it seems. While describing the lifestyle of the Utopians where everything is egalitarian, there are some aspects to the community that make the reader question the true idealness of the society—including the lack of privacy and the participation of slavery.[8] More cleverly includes this hidden meaning in the naming of utopia as well—where utopia begins with "eu—", More also intended the "u" of utopia to represent "ou—", Greek for "no". While Utopia is a happy place, More insinuates that it is simultaneously not a place at all (a "no" place) as it cannot exist.[9] The inherent contradiction of utopia is baked into the term itself, positioning itself through a reality we are striving for, but not one that can ever tangibly be realized.

Outopia works as the hidden secret of utopia: although the book describes a collectivist, beautiful society, it is realistically unfeasible. If it exists, it is no longer a "no" place, and as a result cannot be a "utopia."

Utopia presents an eternal struggle: a struggle between the desire for utopia—the desire for the perfect—and the impossibility of its realization. In practice, the distance between the two becomes obvious, as the translation of its ideal properties can never manifest fully in real life. In this way, utopia is itself static, a force that remains eternally in an unrealized limbo. As it is conceptualized in ideals but never played out in reality, it never occupies a dynamic state. To elaborate through a utopian example, the Garden of Eden showcases this interplay of static and dynamic: within this walled utopia created by God for Adam and Eve, everything is perfect, eternal, static. But with the introduction of an exterior force in the form of the snake, the sanctity of the garden is destabilized, and ultimately falls to total corruption—seen in Christianity as the 'original sin.' The story of Adam and Eve exemplifies the weakness of utopia: it is created in an ideal, static state where all is well, but the threat of a dynamic force right within its walls provides the destabilization needed to cause its downfall. It's often why utopia is viewed unfavourably, as something that is an inevitable impossibility at its own hand.

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7 Thomas More, David Wootton, and Desiderius Erasmus, Utopia (Indianapolis: Hackett Pub. Co, 1999), 9.
8 More, Wootton, and Erasmus, Utopia.
9 Giesecke and Jacobs, Earth Perfect?, 10.

ARCHITECTURE AND THE UTOPIAN IMPULSE

Architects especially gravitate towards the concept of utopia. Often, the type of person that gets attracted to a profession that is tasked to bring visions to reality are people that either create for goodness' sake, or create for vanity's sake, both of which utopia can satisfy. An early insight into the motivating factors of architectural creation is found in Vitruvius' concepts of Firmitas, Utillitas, e Vesustas, or Strength, Utility, and Beauty from Ten Books on Architecture from 30-20 BCE.[10] In the creation of "Architecture," strength and utility are more obviously elements that are associated with the act of constructing architecture, but Vitruvius discusses Beauty in equal importance alongside the other two. How can something as subjective as Beauty be placed in the same importance as Strength and Utility? Yet, as architects, we are taught to intuitively understand this. After all, in school, we learn how to design through the tabula rasa, or the 'blank slate,' as we design to prioritize the aesthetics over other site factors. Utopia exists only in the hypothetical medium, a medium that architects feel most comfortable in, where the reality of the tangible constraints such as those of site, function, structure, and cost have not kicked in, and we can remain within the realm of the ideal.

There are many texts that have addressed utopia from an architect/design lens: Doxiadis' explorations of various 'utopias' as they relate between u–, eu–, and dys– topic axes, written in 1966[11]; Manfredo Tafuri's declaration of utopia's resignation due to the nature of our current capitalist system, written in 1976[12]; Nathaniel Coleman's deep exploration of utopias influence within and around architecture, with multiple books written in the 2000s[13,14]; other writers in this space such as Colin Rowe,[15] Frederic Jameson,[16] Anthony Vidler,[17] and many more. These are just some authors that have explore in the development of this thesis, which if explored in greater detail would constitute an entire separate thesis of itself. In as I see it, is this: though architects' work with the tension between the ideal whims of the drawing and a building's built form, we continue to design ideality, whether through purely speculative methods or radical proposals. Historically, utopias have been grand visions for architects to exercise their vision through. In the 1700s, Ledoux's Ideal City of Chaux is a classic example of this form of paper-architecture that allowed for the architect to use a project as their playground. A large, circular plan of radial buildings facing the director's house

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10 Vitruvius, Morris H. Morgan, and Vitruvius, The Ten Books on Architecture, New Dover ed., unabridged and unaltered republ. of the 1. ed. 1914, Dover Books on Architecture (New York: Dover, 1960).

11 C.A. Doxiadis, Between Dystopia and Utopia (Faber, 1966), https://books.google.ca/books?id=akYRngEACAAJ

12 Manfredo Tafuri, Architecture and Utopia: Design and Capitalist Development, 10. print (Cambridge, Mass.: MIT Press, 1996).

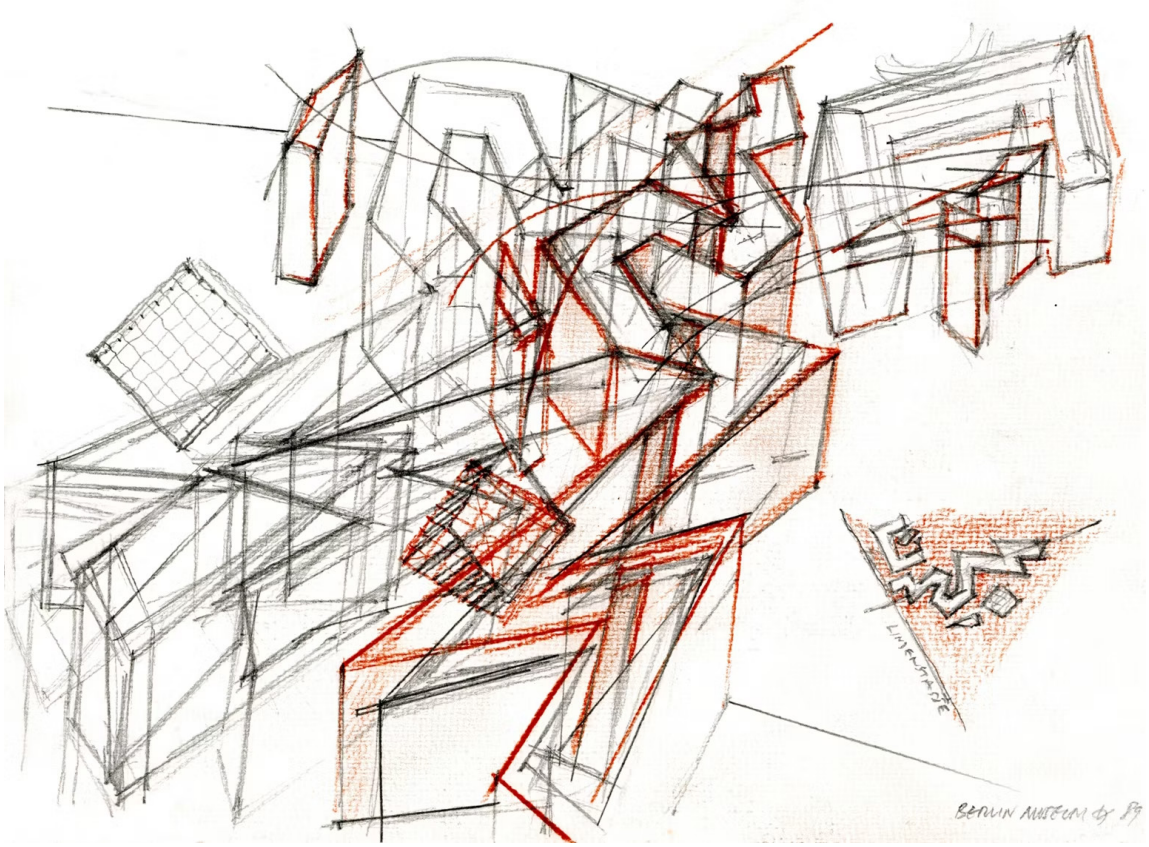
13 Nathaniel Coleman, Utopias and Architecture (Abingdon [England] ; New York: Routledge, 2005).

14 Nathaniel Coleman, ed., Imagining and Making the World: Reconsidering Architecture and Utopia, 1st, New ed ed., Ralahine Utopian Studies 8 (Bern: Peter Lang AG, Internationaler Verlag der Wissenschaften, 2011), https://doi.org/10.3726/978-3-0353-0173-1.

15 Colin. Rowe, The Mathematics of the Ideal Villa, and Other Essays, The Mathematics of the Ideal Villa, and Other Essays (Cambridge, Mass: MIT Press, 1988).

16 Fredric Jameson, Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions (New York: Verso, 2005).

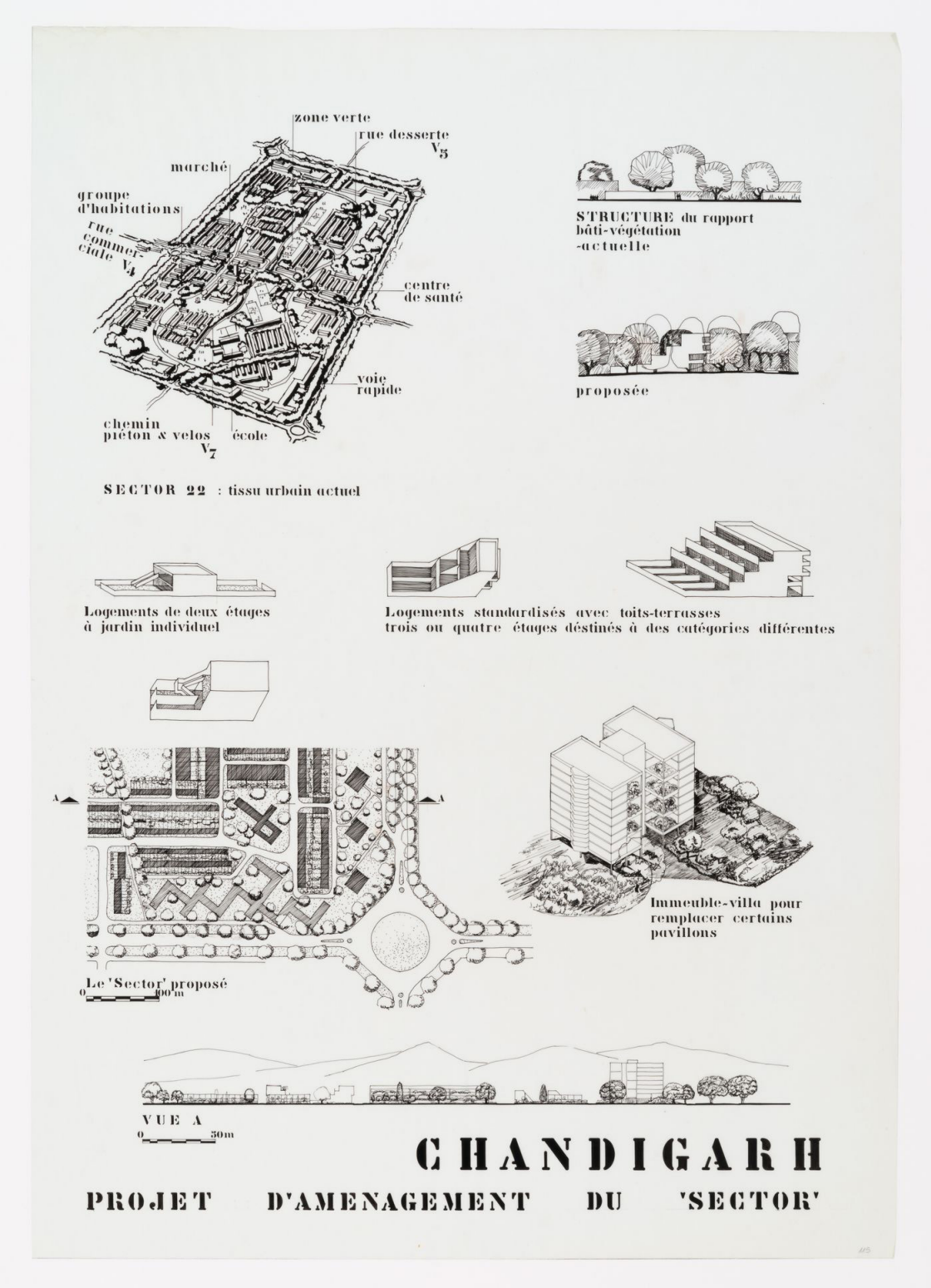
17 Anthony Vidler, "Diagrams of Utopia," in The Activist Drawing: Retracing Situationist Architectures from Constant's New Babylon to Beyond, ed. M. Catherine de Zegher and Mark Wigley, 2001, 83–91.



2.3. Sketch of Jewish Museum in Berlin, 2001, Daniel Liebskind, Courtesy of Daniel Liebskind.



2.4. Jewish Museum in Berlin, 2001, Daniel Liebskind, Courtesy of Guenter Schneider. Aerial view of the museum.



2.5. Layout plan for Chandigarh, India, 1950s, Pierre Jeanneret and Le Corbusier. Courtesy of Canadian Centre for Architecture.

marks a strong axis throughout the plan as a form of hierarchy.[18] Curiously, the plan is clearly delineated and defined by its trees that set the boundary for the inner city. This isn't the only utopian vision to have defined its exterior limit—Ebenezer Howard's Garden City, a project very influential to modernist built attempts at utopia, also had a preset form of radial plans that defined exactly what was within, and what was without. Furthermore, these Utopias of antiquity remained deliberately in the scale beyond the human, always drawn to a scale where the human is not represented. Boullée's Cenotaph for Newton, theoretically a singular building, is not designed to the human scale but deliberately circumvents this to give this sense of grandeur and affect. What is common to all these utopias is that their ambition was limited to drawing—their designs elaborate, but all remained in the outopia, the no place.

Despite this, architects have tried to move beyond the outopos, to move it out of the realm of unreality and into real space. In the 1970s, the city of Chandigarh in North India, was master-planned entirely by Le Corbusier in an attempt at building a realized utopia. The reactions to the city remain mixed, some adoring the unique architectural detail of a highly sophisticated masterplan while others are more critical of its practicality – the use of paved open public spaces with little shade in the Indian heat proved unhospitable for residents to occupy during peak hours of the day, with massive arterial roads breaking up the city in an unwalkable form. As Norma Evenson puts it; "The city was designed, but not planned." And so, the question must be asked; who was this a utopia for?

Chandigarh wasn't the only city to be planned with principals of modernism in a utopian context—having inspired Lucio Costa and Oscar Niemeyer to attempt a utopia of their own. The planning of Brasilia was conceived to create a new national capital free from Brazil's Portuguese colonial influence. James Holston, in his study of Brasilia, outlines the two main ideas of Oscar Niemeyer's plan for the city; first, the plan for a new city should create a social order in its image; second, the new city should promote and model a radically different social practice.[19] Evidently utopian, the city has been likened by critics as "the supreme example of the modernist city."[20] However, Brasilia was flawed. Such a large scale project required labour and attracted many immigrants across the country during its construction, but upon completion, these workers had nowhere to live due to the lack of accommodation in its design for those in less affluent classes. This formed satellite cities around Brasilia such as Belo Horizonte, producing informal settlements for the migratory workers and those forced to move out due to costs. In addition to the lack of foresight of outwardly expanding the plan—a theme of master planned utopias, as explored earlier—these working-class families now live outside the utopian city of Brasilia, doomed to be an outsider to the cities that should have otherwise been meant for them.[21]

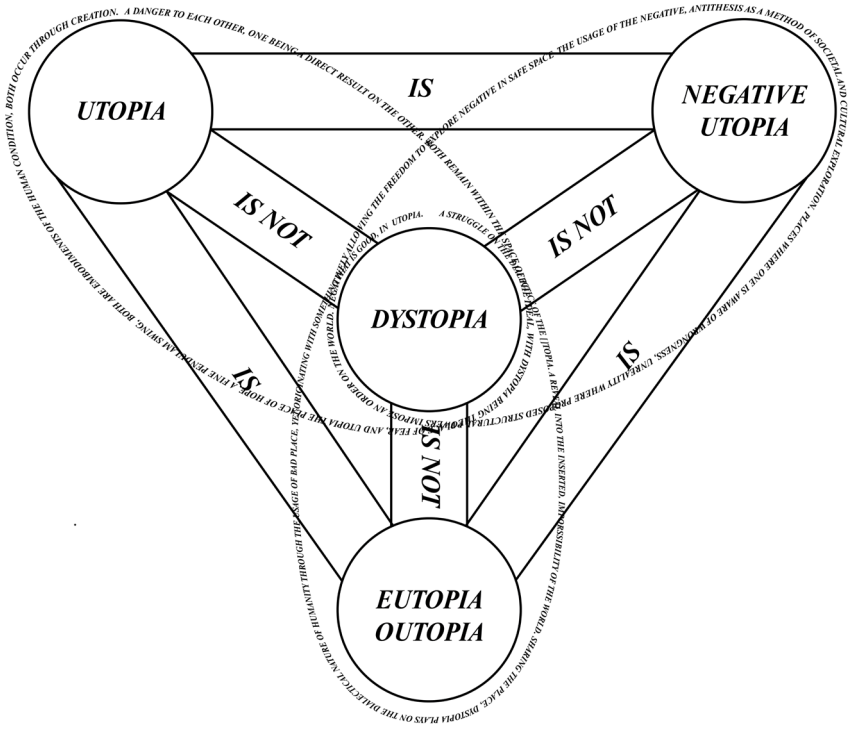
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18 Mariabruna Fabrizi, "The Ideal City of Chaux by Claude-Nicolas Ledoux (1773-1806) – SOCKS," November 9, 2016, https://socks-studio.com/2016/11/09/the-ideal-city-of-chaux-by-claude-nicolas-ledoux-1773-1806/.

19 James Holston, The Modernist City: An Anthropological Critique of Brasília (Chicago: University of Chicago Press, 1989).

20 Peter Fitting, "Urban Planning/Utopian Dreaming: Le Corbusier's Chandigarh Today *. (Essays)," Utopian Studies 13, no. 1 (January 1, 2002): 69–95.

21 Holston, The Modernist City.



2.6. Diagram of Utopia and Dystopia relationship.

Architects want to build utopia, but utopia will never manifest, as it carries the seed of its own demise within it. In this way, utopia is like Schrödinger's cat: it is both alive and dead until you make a utopian attempt, and upon opening the box, it is certifiably dead.

NEGATIVE UTOPIAS

Utopia is a very useful concept to explore ideas, especially ones that may not necessarily be possible in our reality. However, something interesting happens when you begin to design utopia: the tension of its portmanteau, eutopia and outopia existing simultaneously reveals utopia's dialectical nature. Utopia must be in a contradictory state, otherwise it stops being a utopia. This dialectic, in design, becomes misunderstood and misconstrued. What tends to happen the is we slip past the allure of the static page, and we begin to set our imagination into motion, transforming what we once thought of as a utopia into a dystopia. Dystopia tends to be represented as a twin to utopia, something that follows closely after utopia and can never be separated. A good dystopia should not be possible to design without considering utopia first.

Dystopia is utopia set into action. It positions itself as the dynamic counterpart to the static utopia. Dystopia's etymology replaces the eu/ou dialectic with 'dys–', the Greek prefix meaning 'bad', to directly assert that it is a "bad

place." A successful dystopia sets up the premise of a utopian society and plays it out, observing its ideology come to life with all its shortcomings. In these dystopian worlds, this 'badness' is always a focus of the premise, often set in the long established 'utopia' now broken down. Dystopias are useful for a couple of reasons: thinking through these stories prevents us from blindly accepting impossible utopias by exploring negativity at a distance. Dystopia is intentionally uncomfortable, though can easily fall to a solutionless story—one that revels in its heaviness or worse yet, tells the heroic tale of the protagonist succeeding within the broken system, only to imply that the protagonist will perpetuate the system after their victory.

Rather than embracing dynamic dystopia, this thesis explores the usefulness of exploring a dysfunctional utopia—utopia in a static form—through the lens of a negative utopia.

A negative utopia is an inversion of the utopia, a mirror of itself, though not as optimistic. It puts forward the goodness but acknowledges the flaws. Conceptually, it seems to be a similar approach to the dystopia, but there are notable differences. It remains as a static form, as paper architecture. Negative utopias are not concerned with non-designed intentions of the world but accepts the world and its flaws at the start. This way, the negative utopia allows for the benefits of utopia: it accepts the dialectical 'good' place as a design that does strive for good—at least, not explicitly bad as dystopia does—as well as one that can never exist. It also allows for negative thought to express itself in a contained medium. For example, Huxley described Brave New World, considered one of the most notable dystopian fiction novels of all time, not as a dystopia, but precisely a 'negative utopia'[22]. Michel Foucault, in writing about the pure utopia, says this in Le Corps Utopique: "[Utopias] are sites that have a general relation of direct or inverted analogy with the real space of Society."[23] Foucault expresses that utopias work within a relational sense of society, but also in an inverted sense. Foucault sees and acknowledges the contratdictory nature of utopia despite its cohesive existence. Utopias and negative utopias are one in the same, despite their framing or prioritizing different characteristics within each space.

So while dystopia runs in a parallel dimension to the utopia with their paths never crossing, a negative utopia allows for the useful qualities of dystopia to come through. In this way, utopias, eu-outopias, and negative utopias are static ideas, relegated to worlds of paper, of fiction, never to be acted on lest it decay. With dystopia being their dynamic counterpart, it assumes the decay of utopia as its basis and evolves with it. In comparing how dystopia and negative utopias frame ideals, negative utopias encompass a purity of foundational ideals while criticicizing them through the static medium. In this self-awareness can it can lend itself well to architectural planning.

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22 Nic Panagopoulos, "Brave New World and the Scientific Dictatorship: Utopia or Dystopia?," Comparatismi, no. 1 (October 27, 2016), https://doi.org/10.14672/2016907.

23 Michel Foucault and Daniel Defert, Le corps utopique, Lignes (Paris: Nouvelles Éd. Lignes, 2014).

FROM UTOPIA'S DOWNFALL TO REVIVAL

The second world war introduced the world to overt fascist utopias that completely shattered the will for utopian thinking that was present in the early 1900s. With authoritarians co-opting the utopia to impose their ideology onto the population, it made people question what the role of utopia was if it was capable of evil. While utopia was not being attempted, it was being discussed and challenged in this time as seen through novels such as Huxley's Brave New World, Skinner's Walden Two, and Orwell's Nineteen Eighty-Four. Alongside authors, there were philosophers, academics, and critics that explored the topic. Notably, Brave New World's Epigraph is particularly interesting as a record of the opinions of Russian philosopher Nicolas Berdiaff surrounding utopia at the time:

"Utopias appear to be much more realizable than we used to think. And we now find ourselves faced by a question that is much more disturbing: how to avoid their definitive realization? […] And perhaps a new century will begin, a century where the intellectuals and the cultivated class will dream of ways to avoid utopias and return to a "non-Utopian" society, less "perfect" and yet more free."[24]

Despite the promise of the ideal, Berdiaff is firmly against the Utopia, positing it as a detriment to society. Karl Popper, an English Academic writing in the 1930s through 1940s, echoes Berdiaff's sentiment and explicitly links it to authoritarianism: "The Utopian attempt to realize an ideal state, using a blueprint of society as a whole, is one which demands a strong centralized rule of a few, and which therefore is likely to lead to a dictatorship."[25]

However, as Europe healed and post World War Two revitalization efforts were underway, so too the desire for Utopia grew. As humanity recovered from unprecedented devastation and loss, still under the constant pressure of nuclear warfare on the horizon, discussion surrounding utopia emerged.[26] The reemergence of utopia can be credited to Hungarian sociologist Karl Mannheim, who in 1936 opposed the idea of unilateral Utopian control: "The disappearance of utopia brings about a static state of affairs in which man himself becomes no more than a thing [...] with the relinquishment of utopias, man would lose his will to shape history, and there with his ability to understand it."[27]

This way of contextualizing utopia prevailed, giving rise to a reclamation of the idea of utopia within the late 1950s as a positive agent that needs to be instituted within society for a better future.

Utopia began to be explicitly explored in the architectural context soon after.

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24 Aldous Huxley, Brave New World, ed. Robert Southwick, 20. impr, Longman Literature (Harlow: Longman, 2005), 5.

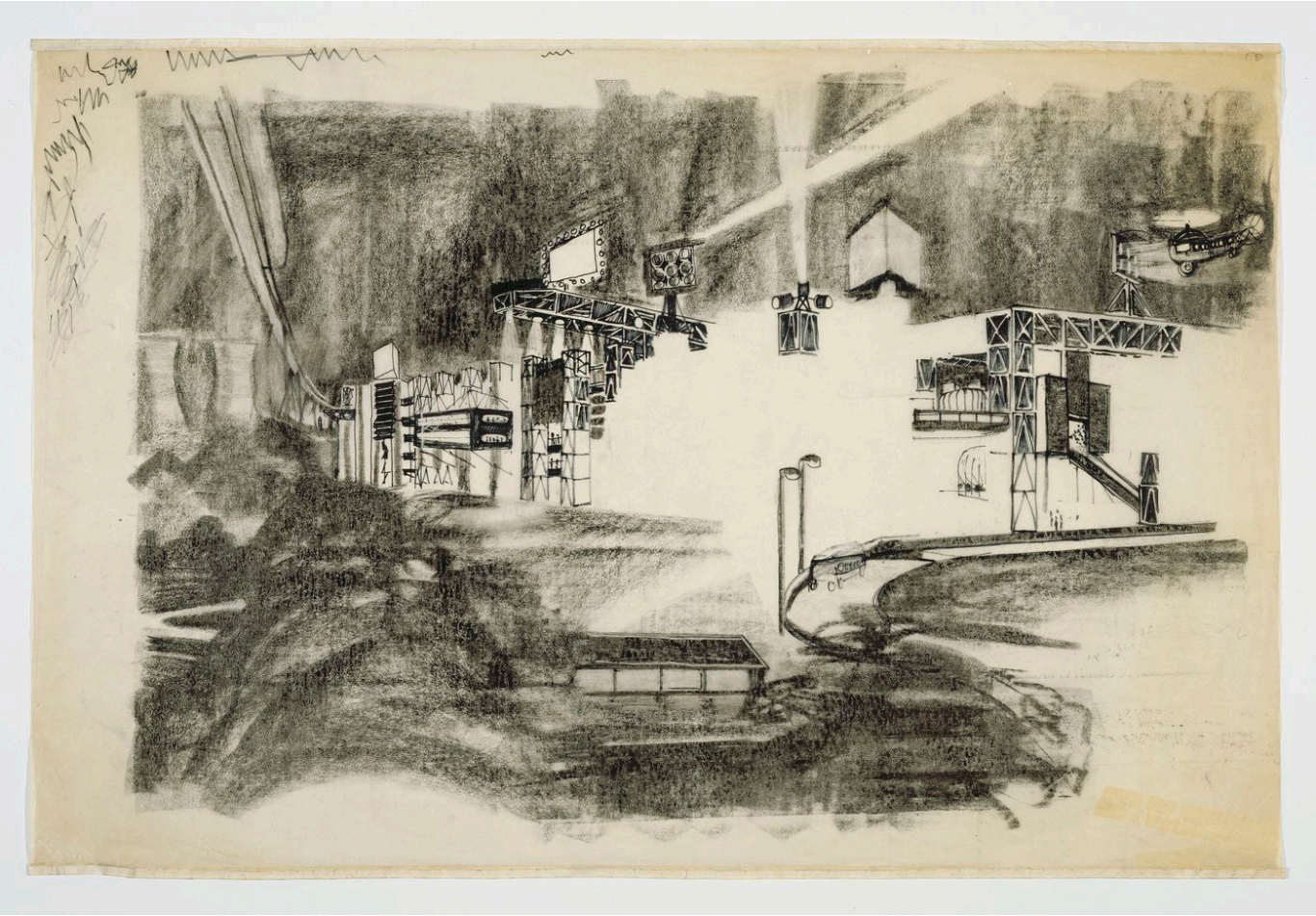
25 Karl R. Popper et al., The Open Society and Its Enemies: One-Volume Edition, One volume edition, Princeton Classics (Princeton: Princeton University Press, 2020), 149.

26 Dario Donetti and Massimiliano Savorra, "Leisure in a Time of Utopia," in Architecture and Dystopia (New York, NY: Actar Publishers, 2018), 129.

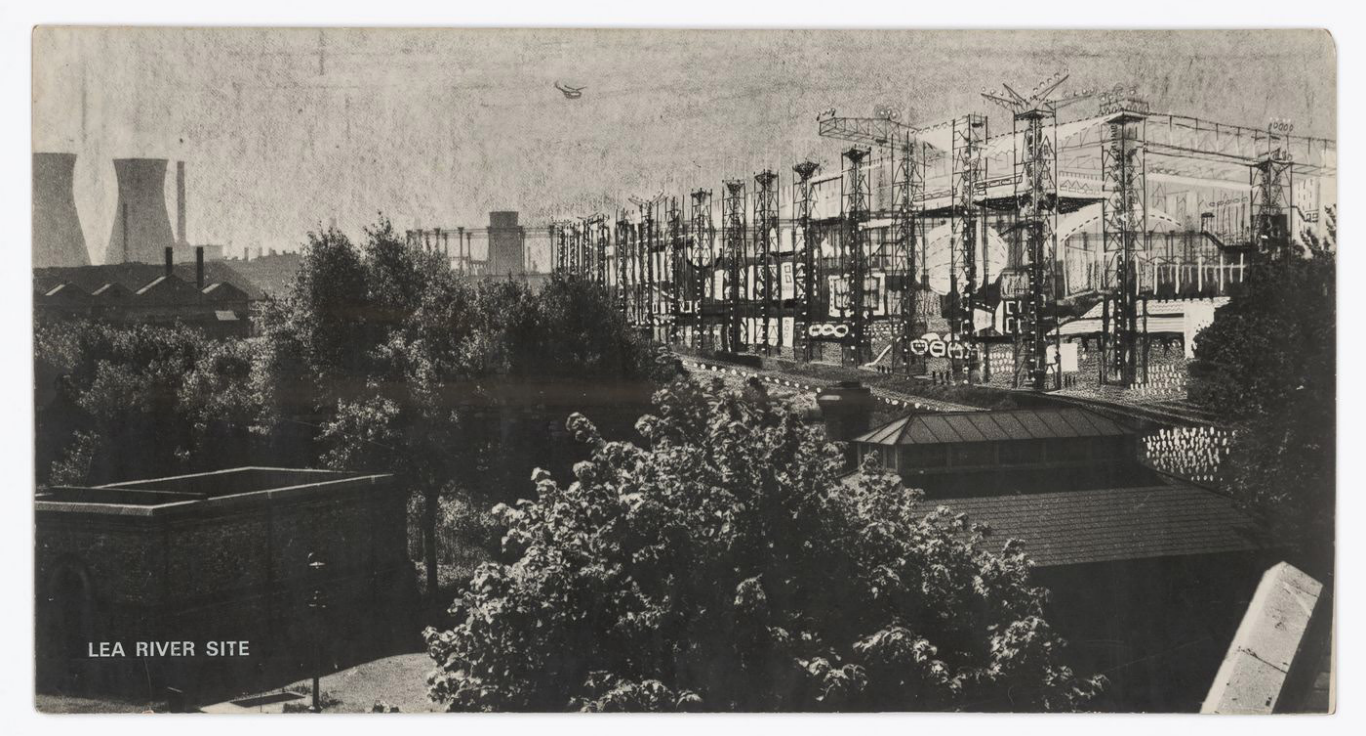
27 Karl Mannheim, Ideology and Utopia: An Introduction to the Sociology of Knowledge (San Diego: Harcourt Brace Jovanovich, 1985), 262–63.



2.7. Model of Germania, a redevelopment project proposed by Adolf Hitler as a reimigining of Germany's capital, Berlin, 1939, Courtesy of the German Federal Archives. An example of architecture and buiilding (or utopia) used to exercise power and control.



2.8. Nighttime render of the Fun Palace, 1964, Cedric Price, Courtesy of the Canadian Centre for Architecture.



2.9. Fun Palace, 1961–1964, Cedric Price, Courtesy of Canadian Centre for Architecture. Perspective collage on the Lea River Site.

A TOOL FOR CRITIQUE

"Not the least unexpected thing about the 1960s was its reinvention of the concept of Utopia." — Frederic Jameson, 1977[28]

By the late 1960s, western society had been deeply considering the future now that the world had been stabilized, but injustices persisted. In 1968 multiple global protests arose, with the Prague Spring in Czechoslovakia, the Civil Rights Movement in America, and student protests worldwide. In the context of utopia, one of the most notable protests within a European context was the May 1968 protest in France, aimed to subvert capitalism and other traditional institutions.[29] This spurred a lot of intensity in the academic sphere about the ideal space to live, with architectural historians looking at earlier models of utopia in France and the United States such as Fourier's Phalanstery and the worlds of the Shakers, Hutterites, and Owenites, amongst others.[30] Research of that era directly influenced students—while American students, under the climate of the Cold War, examined the threat of dystopia, their European counterparts more directly examined radical, utopian narratives.[31]

While not utopian in name, Cedric Price would work alongside Joan Littlewood and Gordon Pask in the 1960s to develop a radical architectural proposal called the Fun Palace. It was meant as a direct critique of Britain's welfare state, where their dissatisfaction with the status quo and the complacency of society motivated them to explore radical methods of how we should live. Using Pask's influence of cybernetic principles—as an early idea of the internet, he viewed cybernetics as not a singular system but as an interactive 'conversation' between two parties[32]—and Littlewood's Brechtian theatre background—a radical theatre meant to prevent observers from coming to catharsis, thus involving the viewer as a part of the play to be critically attentive[33]—Price envisioned a building where the architecture interacted directly with its users, turning the occupant into an active user.[34] He had been designing this anti-architecture with features that designed platforms of feedback loops and logic gateways that interacted with users, in a sense of mutual formation and constant adaptions of user and building. Like Brechtian theatre, they believed that architecture should also fulfill an active role in an occupant's life, and designed for occupants to remain attentive to their environment. While the project was never realized, the Fun Palace had a lasting impact as a radical conceptual exploration of reducing architecture to bare form while being in dialogue with its occupants.[35]

The Italian Radical Architects in the 1970s also challenged the architectural form, and introduced an explicit utopian discourse to the profession in the form

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28 Anthony Vidler, "Utopia Rediviva, 1960-1972," in Architecture and Dystopia, ed. Dario Donetti (New York, NY: Actar Publishers, 2018), 29

29 "1968 Was No Mere Year," The Economist, accessed July 2, 2024, https://www.economist.com/books-and-arts/2018/04/05/1968-was-no-mere-year.

30 Vidler, "Utopia Rediviva, 1960-1972," 29.

31 Vidler, 29.

32 Stanley Mathews, From Agit-Prop to Free Space: The Architecture of Cedric Price (London: Black dog publ, 2007), 75.

33 Mathews, 50.

34 Mathews, From Agit-Prop to Free Space.

35 Mary Lou Lobsinger, "«Cedric Price. An Architecture of Performance»," Daidalos, 2000, https://www.academia.edu/1442541/_Cedric_Price_An_Architecture_of_Performance_.

of a critique. Through a modern critical lens, they explored the concept of the negative utopia within an architectural setting. As an experimental movement from Italy that took place during the late 1960s—1970s, the Radical Architects included Superstudio, Archizoom, Gruppo 9999, amongst others. They started as a group of students from the Florence school of architecture in Italy during the 60s after a change of leadership opened the door for a multi-dimensional approach to teaching, with the students beginning to use multi-media within their architectural education such as film, sculpture, and other contemporary techniques to explore the domain of architecture. This education, alongside being immersed in these diverse cultural ideas through the city with an active art and publishing culture and experiencing an economic recession, inspired the Florentine students to explore alternative ideas about how the profession should be. With the 1966 flood of Florence, the Florentian students seized on a fantasy of the tabula rasa unfolding before their eyes and decided to explore potential futures of a new post-flood Florence. They investigated radical ideas through the hypothetical design of shops, discos, restaurants, and paper architectural collages.

They aimed to subvert the functionalism that preceded them, question the post-war modernization that was happening in Italy (and the world) and challenge the way that architecture was perceived at the time.[36] As Andrea Branzi outlines, the beginning of the systems they were critiquing began with the industrial revolution as the advent of modernist thought within the architectural discipline.[37]

With their deep dissatisfaction of the world, they turned to the Utopia differently from their predecessors. In developing utopias that were obviously unable to be actualized, they rejected the puritanical utopias of Le Corbusier and Niemeyer. They introduced the negative utopia into architectural discourse[38] without resorting to an outright dystopian narrative. By using the form of an inverse utopia rather than the dystopia, they drew upon utopia to launch a critique.

Utopia as critique is not new. It is present within More's island itself: the foundation of the book was meant to be a critique of the English state, where he tells the tale of how the residents of the ideal, good state of Utopia conduct their government, society, and culture, in (implied) opposition to how the English approached their rule.[39] While not all subsequent utopias are critical, the kernel of critique resides in each of them. Even if a utopia does not directly critique a system, its very existence will create a juxtaposition between reality and the ideal proposition.

The Radicals directly embraced utopia as a critique within the architecture, using



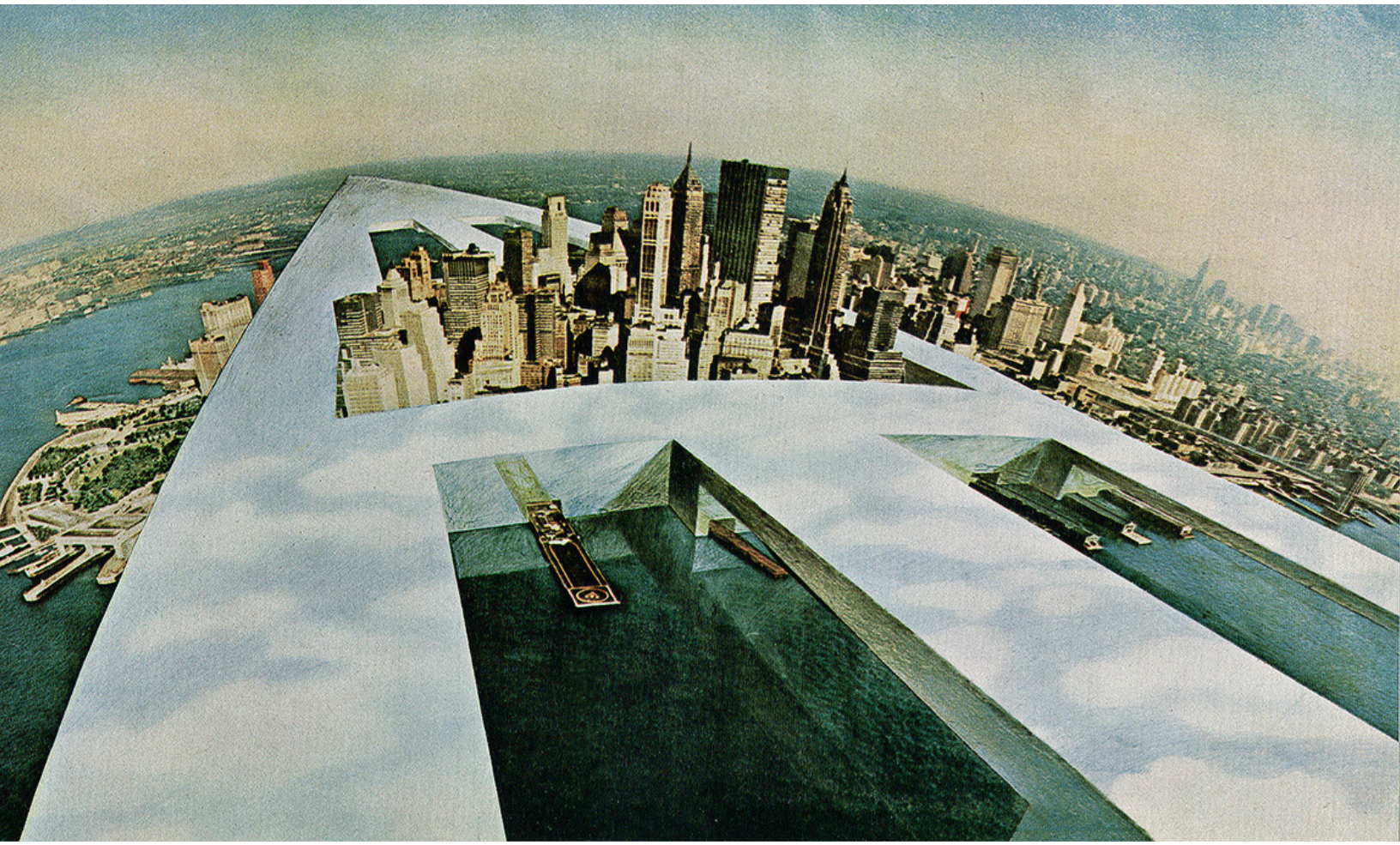
2.10. Continuous Monu

36 Germano Celant, Cindi Strauss, and Museum of Fine Arts, Houston, eds., Radical: Italian Design 1965-1985: The Dennis Freedman Collection (New Haven : [Houston]: Yale University Press ; in association with The Museum of Fine Arts, Houston, 2020), 17.

37 Andrea Branzi, The Hot House: Italian New Wave Design, 1st MIT Press ed (Cambridge, Mass.: MIT Press, 1984), 12.

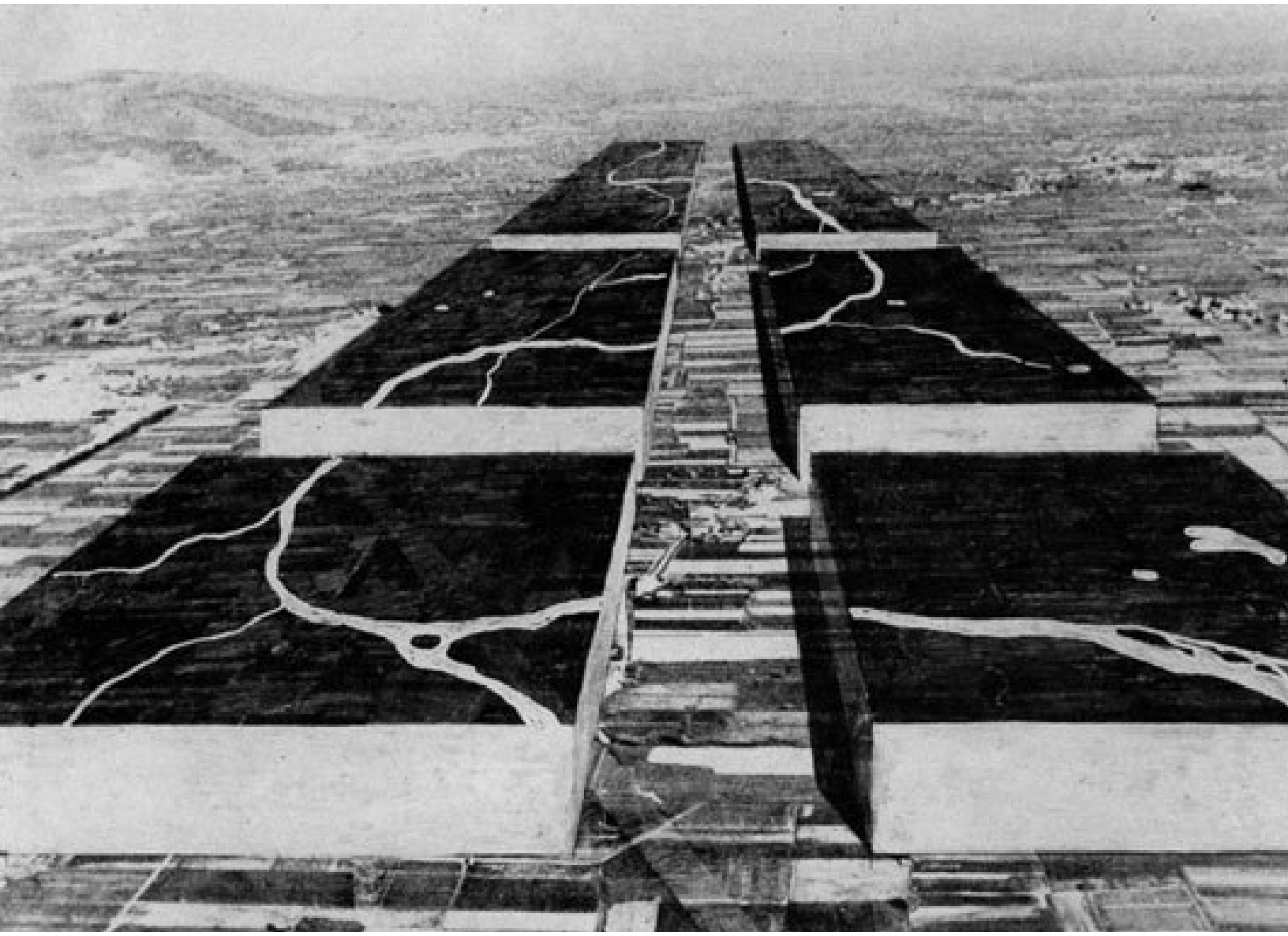
38 Dominique Rouillard, "Dystopia: A Positive Narrative for Architecture," in Architecture and Dystopia, ed. Dario Donetti (New York, NY: Actar Publishers, 2018), 69.

39 Terry Eagelton, "Utopias, Past and Present: Why Thomas More Remains Astonishingly Radical," The Guardian, October 16, 2015, sec. Books, https://www.theguardian.com/books/2015/oct/16/utopias-past-present-thomas-more-terry-eagleton.



ment, 1972, Superstudio, Courtesy of MoMA.

2.11. No-stop City, 1972, Archizoom, Courtesy of Andrea Branzi.



it as a lens to frame their dissatisfaction and to demonstrate what they perceived to be the backwards state of the world. No-Stop City by Archizoom, as an example, was designed with the premise that the modern city is a product of industrialization[40] and proposed massive anarchitectural forms meant to house endless floorplates. No-stop city was modelled off of the factory and the supermarket, with their occupants allowed to occupy the massive, clear floorplates only populated with structural columns and able to adapt each floor to their liking. Superstudio's Continuous Monument also depicts utopia as a hyperbole, where they describe it ironically as a "moderate utopia for the immediate future"—the intent was to provide an efficient mode of building for an increasingly impoverished and ever-growing world population, thus only "areas optimally suited to human habitation" would be built up, and others left free, in a model of total urbanization.[41] The Continuous Monument communicates the way we live by way of fiction, turning the idea of the renaissance utopias on its head and proposing a radical mode of living.

The impact of the introduction of utopia to architectural criticism reached beyond the Italians to other groups; Utopie, Louis Martin, Claude Levi-Strauss, amongst many others contributed to the discourse. Whichever group it was, Utopia as a concept allowed these scholars, theorists, and architects the flexibility to explore the faults of their times while working through solutions and positive ideologies for their futures.



40 Branzi, The Hot House, 69–70.

41 "Cristiano Toraldo di Francia Architetto," Cristiano Toraldo di Francia (blog), May 7, 1970, https://www.cristianotoraldodifrancia.it/continuous-monument/.

CONCLUSION

Utopia is an inspirational tool. It inspires us to be better than we currently are. Because of this, it has been used to explore personal and societal ideological stances within a safe realm. For example, during the Enlightenment, utopias were based in grandiose, objective idealism, looking to the cosmos as a source of inspiration—such as Boulleé's Cenotaph for Newton. On the other hand, utopias now, with a cursory google search, yield futuristic, chrome-rendered buildings, flying cars, and illogical roadway systems, showcasing a techno-futurist alternate world that may be a possibility soon. The idealism in these utopias remain within the time period in which they're imagined: they are no-places, but that does not mean they are not without time. As a result, utopias reflect the governing principals of a society, and what they should or should not be.

In the 2000s, utopia became an unpopular subject. As with the cycle of distaste in utopia post-war followed by intense interest in the 70s, we experienced a utopian winter. With the 21st century marked by the word of 'crisis',[42] the 2010s and 2020s have been especially branded with hardships.

But that is why we need utopia. As a foreboding reminder of societal shortcomings, its exploration allows us to explore alternate realities of a flawed world. When the unpopularity of utopia peaked in the 1930s and 1940s, groups seeking to spur change and conversation grasped the utopian narrative; exemplifying this turn was the student publication from Cambridge through Granta, explicitly seeking to reclaim utopia from its negative associations.[43] This led to the fervour of the 1960s and 70s avant-garde, which has since diminished once again. After

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42 Gizem Deniz Güneri, "A New Conceptual Framework for Architectural Utopia(ism)s" (dissertation, 2014), 17.
43 Vidler, "Utopia Rediviva, 1960-1972," 25.

almost a century of relative peace, I argue that there is now a widespread stagnation in imagining ideological futures. Like the utopian movements of the past, we need to continue conversation, we need to find idealism, we need utopia. As Karl Mannheim wrote: "A state of mind is utopian when it is incongruous with the state of reality within which it occurs."[44]

In this thesis, I address utopia within our current context. When we return to the question of how to define 'utopia,' we should consider the common elements that unite this otherwise dialectical term: the willingness to create/design ideality, its useful benefit for critique, yet its instability as a positive agent by accepting its negative counterpart. Considering this, I borrow Miriam Eliav-Feldon's definition of Utopia:

"A Utopia is an invitation to perceive the distance between things as they are and things as they should be."[45]

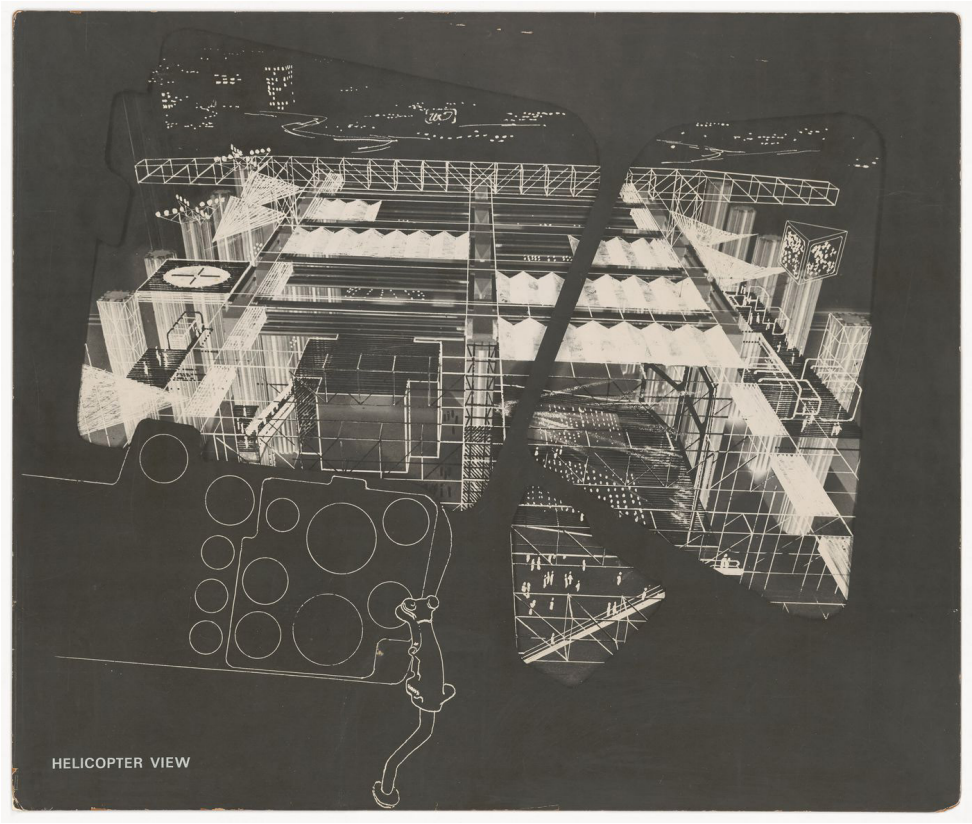
Eliav-Feldon's quote is, ultimately, the best way to use utopia to our benefit, and how this thesis will define and view utopia from this point forward. Examining utopia is examining the reality of living. It is defined by what we believe to be good, just, and ideal—it identifies what is required for a society to be happy. Consequently, it forces us to examine the failures of the societies and motivates us towards systems of change. Utopia can show us our failures as much as it shows us our dreams.

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44 Karl Mannheim, Ideology and Utopia: An Introduction to the Sociology of Knowledge (San Diego: Harcourt Brace Jovanovich, 1985), 175.

45 Miriam Eliav-Feldon, Realistic Utopias: The Ideal Imaginary Societies of the Renaissance, 1516-1630, Oxford Historical Monographs (Oxford New York Toronto: Clarendon press Oxford university press, 1982).

03



3.1. Fun Palace: helicopter view, 1964, Cedric Price, Courtesy of Canadian Centre for Architecture.

DISRUPTIVE REAL ESTATE AND ITERATIVE CAPITALISM

Our ability to rapidly advance and enhance the way we live is in large part due to our exponential capabilities of production, qualities honed in the wake of the industrial revolution. Within a hundred years, we went from hand crafting chairs, to producing cheap, mass-produced furniture that can be manufactured for very inexpensively—and by underpaid labour—in an assembly line. Spurred by capitalist practices, the intense generation of profit became deeply rooted in most countries and maintained by global labour practices, with North American jobs are geared to generate capital instead of producing goods—as evidenced that around 62%, more than half of the workforce in the United States had been working white collar jobs in 2022.[1]

Take the housing market. The spaces we occupy, how we exist within this capitalist landscape and the limits of this ideology are quickly revealed when inspected under a magnifying scope. The dream of housing has been destroyed, as real estate has shifted from a priority of housing to a priority in investment. Hardly sustainable as a system, housing is now a runaway cart that the average person and the average society cannot control. The wheels of profit keep churning at our expense. With the recent technological proliferation of Artificial Intelligence, the real estate system can now be found in synergy with AI as a parallel agent, one that is able to operate in a way that isn't human, but is able to soundly fit itself within the strong, free market system. In delineating how the housing crisis started, we can then begin to examine how Artificial Intelligence can become an aid for the proliferation of the neoliberalist landscape.

1 "AI Is Not yet Killing Jobs, AI Is Not yet Killing Jobs," The Economist, accessed August 23, 2024, https://www.economist.com/finance-and-economics/2023/06/15/ai-is-not-yet-killing-jobs.

NEOLIBERALIST FORCE

"I think we have gone through a period when too many children and people have been given to understand "I have a problem, it is the Government's job to cope with it!" or "I have a problem, I will go and get a grant to cope with it!" "I am homeless, the Government must house me!" and so they are casting their problems on society and who is society? There is no such thing! There are individual men and women and there are families and no government can do anything except through people and people look to themselves first."[2]

—Margaret Thatcher

It was in an interview in 1987 for British lifestyle magazine Woman's Own that Margaret Thatcher, then in her third term as the United Kingdom's Prime Minister, plainly stated that she believed that 'society' was not a concept, nor an entity with its own agency, influence, or collective, but that it was only individuals that had the power to make things happen. This message was one that deliberately opposed government interventions, or more specifically directly blamed those that had a pre-conceived notion of relying on government for solutions, but that it was the individual's responsibility for problem resolution.

Though she had 'clarified' the meaning of her statement from the interview in a statement issued to the Sunday Times a year later,[3] her quote gained a lot of notoriety and was indicative of how The Iron Lady viewed governance. Thatcher was known to be publicly opinionated, never shying away from what she believed the UK was meant to be—she felt she had to make these drastic decisions after she had inherited a "troubled country" when she was elected as Prime Minister. In the 1970s, the UK was in a dire position: the economy was stagnating yet simultaneously dealing with inflation, all the while unemployment being at an all-time high a period which would later be dubbed as "stagflation." When Thatcher came to power, she emphasized the notion of competition, both on the global stage and within the country, but importantly, competition between each other. By disparaging the Welfare state and any promotion of reliance on government, she had approached policy within her administration with heavy-handed conservative values, in an effort to curb the problems in she had been seeing. All of these policies were therefore necessary to pull the UK out of a difficult position into stability, because, according to Thatcher, "There Is No Alternative."[4]

She wasn't the only leader to be thinking like this. The United States, and to a lesser extent Canada, had observed the radical policies and ideology that Thatcher was promoting with a heavy hand in the UK, and decided to follow closely in step. This brought about the infamous era of Reaganomics within the States, one that would influence America, and the world to this day. This economic ideology would be called "neoliberalism."

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2 "Interview for Woman's Own ('no Such Thing [as Society]') | Margaret Thatcher Foundation," accessed August 22, 2024, https://www.margaretthatcher.org/document/106689.

3 "Interview for Woman's Own ('no Such Thing [as Society]') | Margaret Thatcher Foundation."

4 "A Short History of Neoliberalism | Transnational Institute," July 25, 2024, https://www.tni.org/en/article/a-short-history-of-neoliberalism.

Neoliberalism started taking hold within English speaking countries in the 1980s—and though not an official method of governance per se, neoliberalism was heavily influential with the administrations of Thatcher in the UK, Ronald Reagan in the US, and Brian Mulroney in Canada. At its core, neoliberalism aims to support the financial markets through its deregulation, removing labour protections, privatizing public goods and services, and importantly, especially at the time, eliminate the social programs that had been put in place to support the postwar population.[5]

One such area that was dramatically affected at this time was housing policy, which in turn, had a massive impact on the deregulation and financing of housing in the eighties. In Canada, social housing, housing co-ops, generally any typology that had provided an alternate choice to the private market was defunded by both federal and provincial governments. There was a 62.5% decrease in social housing units from 1972 to the latter half of the 1980s, going from 32,000 units to less than 12,000, until only around a thousand remained in the late-90s, only to be cancelled soon after.[6] As this was occurring, the Canada Mortgage and Housing Corporation (CMHC) pushed for the financialization of homeownership through various incentives.[7] In fact, from a paper published in 1987 by the Research Division of the CMHC, they had noted in the "What Have We Learned?" section of their report that "a reliance on the private sector and the powerful incentive of the profit motive has provided Canada with one of the highest standards of housing in the world."[8] This deliberate push for the privatization of housing led directly to the liquidity of the mortgage market, resulting in drastic increases in home pricing and, as a result, strengthening the financial sector.[9]

These neoliberalist policies touched many aspects of the housing sector. In addition to this push of privatization, there was a concurrent effort to deregulate tenant protections and rent controls. Because of this specific deregulation, it provided a strong incentive for private landlords to get more value out of owning houses now that rent increases and evictions were easier to perform. The government was heavily interested in promoting home ownership to stimulate the economy, and by shifting housing policy, developing financial tools and deregulating the country's financial sector to promote this, the consequence would lead to the commodification of the housing market that we are living through today.[10]

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5 Martine August, "The Financialization of Housing in Canada: A Summary Report for the Office of the Federal Housing Advocate," The Office of the Federal Housing Advocate, June 2022, 16.

6 Maria Wallstam and Nathan Crompton, "Understanding Canada's State-Backed Real Estate Crisis," December 14, 2023, https://themainlander.com/2023/12/14/understanding-canadas-state-backed-real-estate-crisis/.

7 August, "The Financialization of Housing in Canada: A Summary Report for the Office of the Federal Housing Advocate," 17.

8 "Housing Progress in Canada since 1945," n.d., https://publications.gc.ca/collections/collection_2017/schl-cmhc/NH15-518-1987-eng.pdf.

9 August, "The Financialization of Housing in Canada: A Summary Report for the Office of the Federal Housing Advocate," 17.

10 August, 22.

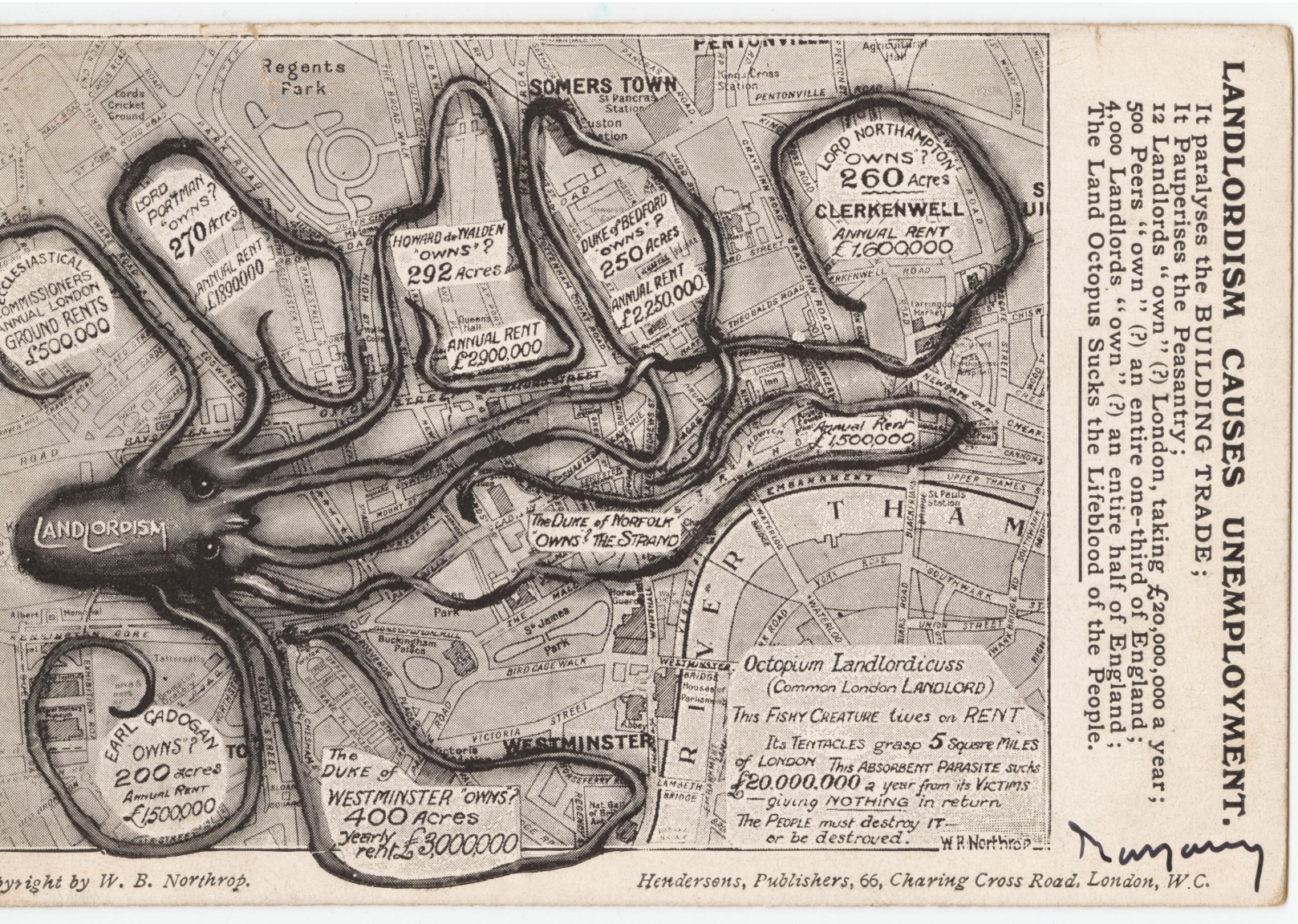
Ultimately, the institutionalization of neoliberalist policies kickstarted and perpetuated the housing crisis as we experience it now. Tax cuts for developers, bank bailouts, deregulation of mortgage financing, amongst all the previously stated policies have led to the behemoth that is the housing market today, at the expense social and rental housing.[11] This integration between the housing markets and financial sector is deeply rooted still; an example of this being in 2020 and 2021 when the housing a mortgage markets were used to stabilize the financial sector from the COVID-19 pandemic crisis.[12]



11 Wallstam and Crompton, "Understanding Canada's State-Backed Real Estate Crisis."

12 August, "The Financialization of Housing in Canada: A Summary Report for the Office of the Federal Housing Advocate," 18.

3.2. Landlordism Causes Unemployment, 1909, W.B. Northrop, Courtesy of the Private Collection of PJ Mode. A postcard depicting the tendrils of corporate landlords within the city of London in the 1900s.



THE HOUSING CRISIS

A housing crisis occurs when two problems overlap: first, there is a limited number of affordable options available, and second, there is lack of supply of housing available in compared to its demand—either due to sudden changes in perspectives on home ownership, or a neglect of building over the years.[13] Canada is currently suffering from both problems in what the government has officially deemed a crisis.[14]

It's important to note that the United States is similarly facing a housing crisis. However, when comparing the two countries, Canada stands out as having a significant problem in the real estate sector—with average house prices far exceeding the average Canadian's income. The sheer difference of problems between the two countries is evident when comparing this side by side.

In what follows, I will explore Toronto's housing situation as a crisis directly affecting the future of young Canadians and their ability to feel stable and welcome within their country.

The effects of the housing crisis are particularly aggravated in Canada's cities, with city residents continually feeling priced out. Cities are often the place where immigrants and people seeking opportunities move to for career, social, or financial goals. As a result, there are many residents in cities that have remained in the city for many years, despite the rising cost of living as exacerbated by the current housing crisis. These leaves a lot of lower to middle income families in a difficult position: remain in the city with very little (or no) financial support or leave the place they call home. The housing crisis also heavily affects single residents trying to get a foothold in the city. A single resident who wants to work in Toronto need earn $68,320 per year to afford a one-bedroom apartment in 2024,[15][16] which is around 35.5$/hour, far beyond the current $17.20/hr minimum wage.[17] This is using the 30% rent rule: there are many earn far less yet still rent, and when factoring the need to participate in the city, in socialization, any chance for a family, or even savings, affordability quickly becomes difficult.

Discussions are being had at length about the cause, and there will certainly be discussions speculating other causes for the housing market failure, but it is

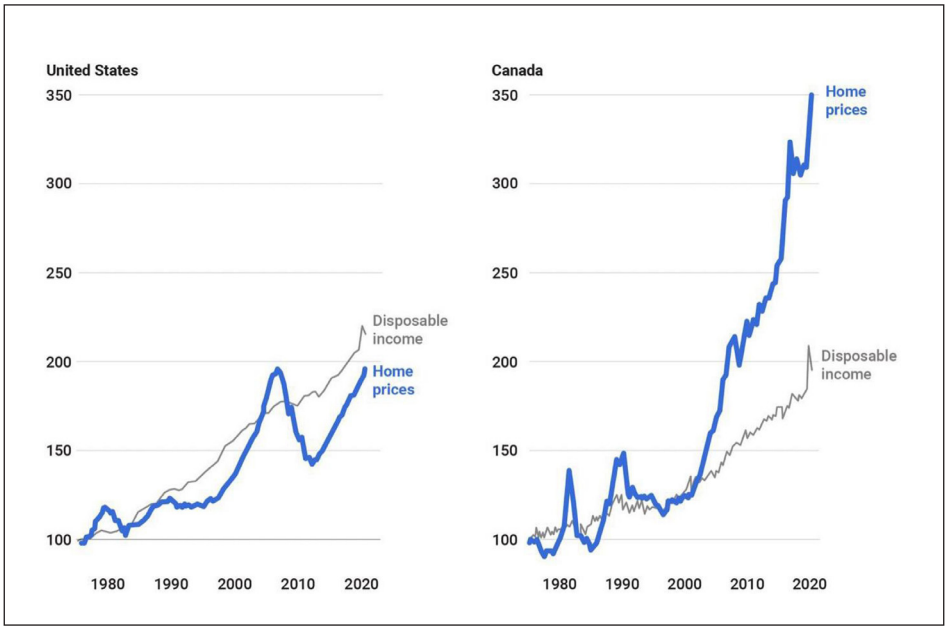
13 Crystal Fung, Sahil Parikh, and Piotr Zulauf, "THE CRISIS OF AFFORDABLE RENTAL HOUSING IN TORONTO," n.d.

14 Infrastructure Canada, "Housing, Infrastructure and Communities Canada - Solving the Housing Crisis: Canada's Housing Plan," April 10, 2024, https://housing-infrastructure.canada.ca/housing-logement/housing-plan-report-rapport-plan-logement-eng.html.

15 Calculation based off City of Toronto's Average Market Rents (AMR). For a one-bedroom, the City states the AMR is $1,708. From personal experience, in the inner city in 2024, this required yearly income would likely jump up to around $98,000, as one-bedrooms seem to be around $2,400 per month.
City of Toronto, "Current City of Toronto Average Market Rents & Utility Allowances," City of Toronto (City of Toronto, November 24, 2017), Toronto, Ontario, Canada, https://www.toronto.ca/community-people/community-partners/social-housing-providers/affordable-housing-operators/current-city-of-toronto-average-market-rents-and-utility-allowances/.

16 Calculation based off Affordability figure from the Affordable Housing Challenge's report.
"Advancing the Right to Housing in Toronto: Critical Perspectives on the GTA's Housing Crisis and How to Solve It." (University of Toronto, 2022), https://affordablehousingchallenge.ca/wp-content/uploads/2022/11/advancingtherighttohousinginto-2022.pdf.

17 "Ontario Raising Minimum Wage to Support Workers," news.ontario.ca, accessed November 2, 2024, https://news.ontario.ca/en/release/1004366/ontario-raising-minimum-wage-to-support-workers.



3.3. Graphs comparing the rise in disposable income vs the prices of housing from 1980 to 2020 in Canada and United States. Source: Federal Reserve Bank of Dallas.

important to keep in mind three major contributing factors to the unaffordability/unavailability of homes: the lack of availability of housing stock in the country, the commodification of the housing market, and finally, the lack of complexity of housing typologies.

Availability

A major contributor to the crisis is the lack of housing stock on the market. The Canadian government has shown awareness of the problem of underbuilding. For instance, a 2024 report published by the federal government outlined strategies on tackling the Canada's housing crisis, with emphasis throughout the report on the need to create more housing stock.[18]

In the aftermath of the second World War, Canada was in a similar predicament. War veterans were returning to a country that had little room to house them. As a result, Canada initiated investment in housing to rectify the situation. However, since the baby boomers—the generation notably significantly more populous than other age groups—had entered the housing market, Canada is in a similar situation again. Since the post-war housing investment, however, there has been a change in attitude in the housing market. Restrictive housing policy prevented houses being built near specific infrastructure, limiting growth of housing. The government shifted their investments away from housing and into other avenues, as well as neglecting and deliberately defunding options for affordable housing.[19]

While Toronto's problem of underbuilding isn't unique, it is in a distinct position as compared to other cities in the world. For example, one of the most extreme examples of housing crises in the world can be found in Hong Kong, where one can find residents forced to rent 'cubicle apartments' also known as 'coffin homes,' which are otherwise hyper subdivided apartments often measuring less than 25 square-feet per room. [20] The fact some residents have been forced to rent out these micro-units is due to the dire housing situation in Hong Kong: partly since real estate is expensive with wage being low, Hong Kong being a densely populated city, but most importantly, that despite the previous two factors, only 7% of Hong Kong's land area is zoned for residential use.[21] That means, in a population of 7.3 million people[22], Hong Kong only has 78 km2 of residential area. By comparison, with New York City's with a slightly larger population of 8.8 million,[23] their residential zoning makes up 75% of the total land area,[24] which gives New Yorkers approximately 590 km2 of residential area.[25] This is 7.5 times the amount of land that Hong Kong has with only a marginally bigger population.

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18 Canada, "Housing, Infrastructure and Communities Canada - Solving the Housing Crisis."
19 Canada.
20 Chris Weller, "11 Crazy Photos of Micro-Apartments around Hong Kong," Business Insider, accessed July 20, 2024, https://www.businessinsider.com/crazy-pictures-of-micro-apartments-around-hong-kong-2018-1.
21 "Why Hong Kong Is Building Apartments the Size of Parking Spaces," Bloomberg.Com, November 9, 2021, https://www.bloomberg.com/news/features/2021-11-09/the-design-history-of-hong-kong-s-microflat-homes.
22 GovHK (www.gov.hk), "GovHK: Hong Kong — the Facts," accessed August 11, 2024, https://www.gov.hk/en/about/abouthk/facts.htm.
23 "New York City, New York - Census Bureau Profile," accessed August 11, 2024, https://data.census.gov/profile/New_York,_New_York?g=160XX00US3651000.
24 "Zoning: Districts Guide -Residence Districts - DCP," accessed July 20, 2024, https://www.nyc.gov/site/planning/zoning/districts-tools/residence-districts-r1-r10.page.
25 "U.S. Census Bureau QuickFacts: New York City, New York; New York; United States," accessed August 11, 2024, https://www.census.gov/quickfacts/fact/table/newyorkcitynewyork,NY,US/PST045223.

In comparison with Toronto, the city's zoned residential area comprises 38.9% of the land area,[26] and when putting that up against the city's population of around 3 million, the residents have about 245 km2 of residential area to occupy[27]—more residential land area per resident than either Hong Kong or New York can afford. While a lot of the messaging in this housing crisis is centered on the fact that we simply need to build, which can be seen as a resolution in the case of Hong Kong, it's important to note that building new stock cannot be the sole tactic moving forward. We see this with New York, a city densely populated with housing yet still experiencing unaffordable housing despite the availability of housing.

Financialization

Navigating away from its primary function of housing people, the real estate industry is experiencing a fundamental failure of regulation. The commodification of the housing market leads to many difficulties for residents—viewing property as just another portfolio item to accrue wealth instead of a place where one is home has a domino effect on resident's ability to live meaningfully.

According to Statistics Canada, 1 in almost 3 residential property owners in Ontario are investors—meaning, 31% of owners own more than one property.[28] Moreover, when looking at condominiums, as many as 41.9% of condominiums within Ontario are investor owned—the highest of any province in Canada.[29] Especially in the case of condominiums, a housing typology often meant to act as one's 'starter home' and entry into the housing market, when almost 42% of the housing stock is occupied by investors, first time home owners have a difficult time competing.

Not only is the average homebuyer competing with other homebuyers, but there is also a notable competition with the corporations as well. Corporations own 302,760 residential properties in Ontario in 2022,[30] with businesses owning 74,485 condominiums for investment, or 13.4% of all condominiums within the province.[31] With 30% of all occupied units within Toronto being condominimums in 2021[32] and ever increasing with seemingly exponential developent.

With investments and corporations vested interest in real estate as a market, the goal of housing changes. No longer is housing solely dedicated to shelter, it is now a primary vehicle of investment profit. In 2022, over half of the requests to increase rent above provincial guidelines came from just 20 corporate landlords.

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26 City of Toronto, "Expanding Housing Options in Neighbourhoods," City of Toronto (City of Toronto, February 27, 2020), Toronto, Ontario, Canada, https://www.toronto.ca/city-government/planning-development/planning-studies-initiatives/expanding-housing-options/.

27 City of Toronto, "Toronto at a Glance," City of Toronto (City of Toronto, November 14, 2017), Toronto, Ontario, Canada, https://www.toronto.ca/city-government/data-research-maps/toronto-at-a-glance/.

28 Statistics Canada Government of Canada, "Residential Real Estate Investors and Investment Properties in 2020," February 3, 2023, https://www150.statcan.gc.ca/n1/pub/46-28-0001/2023001/article/00001-eng.htm.

29 Government of Canada.

30 Statistics Canada Government of Canada, "Business and Government Ownership of Residential Properties, by Legal Type and Industry," April 17, 2019, https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=4610002301.

31 Government of Canada, "Residential Real Estate Investors and Investment Properties in 2020."

32 "City of Toronto Housing Data Book" (City of Toronto, March 2023), 45, https://www.toronto.ca/wp-content/uploads/2023/03/96be-HousingSecretariatDataBookMar20230320small.pdf.

Over 10% where filed by one company.[33] Housing, unlike other investments in one's portfolio, has a direct and real impact on everyone. Everyone needs somewhere to live, somewhere to call home. It has a tangible impact on absolutely everyone who lives. But in dealing with investments, there is a direct incentive not to lose profits, which will always result in subpar housing when corners are cut for the bottom line. Of course, this financialization of real estate is a global phenomenon, but it's distinctly notable in Canada when, despite having so much landmass, only a fraction of the country is infrastructurally able to support big populations.

The effect that the commodification of housing places on the individual is vast, not just by impacting residents through the obvious financial destabilization that occurs from the unaffordability of these units, but it also reduces resident's quality of life with some of these private firms through maintenance mistreatment, threat of/follow through of evictions, which often affects racialized and marginalized groups as groups that tend to be most impacted by income inequality.[34]

Homogeneity

If Canada is underbuilding, and housing is seen foremost as a commodity, another problem emerges when developers look to build what is efficient and profitable instead of what people need. With the goal of developing the best return on investments. this results in a lack of complexity in the housing market.

As a result, we begin to see a limited diversity of typologies available on the market. Major subdivisions of the same cookie-cutter houses within suburban divisions, and inefficiently planned condo that cost almost as much. If 41.9 percent of condominiums are owned by investors[35], it would be in the best interest of said investors to be as efficient as possible with their properties to yield the most profit. No longer would developers pay attention to spatial or practical qualities of a space, because the underlying idea is that people will not be living in these units for long-term. In the case of condos, there has been a shift to providing amenities, optional overnight suites, and in some instances, virtual golf. But even in these luxurious buildings, the unit is lackluster.

With Toronto seeing the highest growth for new Assessments in Residential Condominiums, up from 2022 from 4.8 billion to 5.6 billion,[36] this demand is not slowing down.

33 Aloysius Wong, "Just a Few Big Landlords Come up, Again and Again, in Analysis of Ontario Rent Hikes," CBC News, April 17, 2024, https://www.cbc.ca/news/investigates/ontario-above-guideline-rent-increases-2022-data-1.7175254.

34 August, "The Financialization of Housing in Canada: A Summary Report for the Office of the Federal Housing Advocate," 6–7.

35 Government of Canada, "Residential Real Estate Investors and Investment Properties in 2020."

36 "2023 Roll Return Fact Sheet | MPAC," accessed July 22, 2024, https://www.mpac.ca/en/News/FactSheet/2023RollReturnFactSheet.

LESS FOR MORE

The way neoliberalism dictates our means of living is pervasive. It seeps into our day to day living, even persuading us into thinking that the goal in life is to own a piece of property—almost behaving like a solution to all problems. Neoliberalism "claims that the economy should dictate its rules to society, not the other way around."[37]

But it doesn't quite work that way. This illusion of being an ideology that promotes strength in individualism is just that—an illusion. Yet, despite its continuous neglect of the individual within society, it persists. Neoliberalism has been introduced, and because it has been a convenience for governments to ideologically perpetuate it, it has continued to be present within policy making, even if not explicitly referenced. With it comes a lack of housing stock, a lack of housing complexity, and the financialization of housing in Canada therefore leads us to the crisis we are experiencing today. While a crisis drives up the price of housing —benefitting developers and homeowners but harming those looking to get into the market—this ultimately causes a problem for those who want to perpetuate the market.

How can you sell to those if they can't afford to buy? How can you keep profits but move your units? The way developers have taken to this is to build smaller units. One that people can afford, but not necessarily what everyone wants.

This is supported by statistics: Toronto's housing is shrinking at a remarkable rate. According to StatsCan, condominiums constructed in Canada today have significantly decreased in square footage as compared to condos built in the late 20th century. In Toronto, condominiums found in the metropolitan area from 1971-1990 had a median square footage of approximately 1,000 square feet, condos built today (between 2016-2020) had a median square footage of around 650 square feet—400 square feet smaller than what they used to be.[38]

The shrinkage of the market is continuing; limited offering, either by profit margin or affordability of units is evident as recently as the 2024 Q1 Condo Market Report released by the Toronto Regional Real Estate board.[39] According to this report, 696 out of 1071—65 percent—sold bedrooms in Q1 in the downtown core have been one bedroom flex (including bachelor and dens, as dens are difficult to predict whether it is large/adequate enough for a person to be residing in them).

One reason that condos are shrinking has to do with affordability—according to the Toronto Star, 60% could afford a condo apartment in 2019, with around 40% being able to buy a single-family home. In 2023, however both drastically dropped, with now just 45% of residents being able to afford a condo and

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37 "A Short History of Neoliberalism | Transnational Institute."

38 Statistics Canada Government of Canada, "The Condo Market in Toronto and Vancouver: A Home, an Investment and Increasingly a Rental Property," March 20, 2023, https://www.statcan.gc.ca/o1/en/plus/3237-condo-market-toronto-and-vancouver-home-investment-and-increasingly-rental-property.

39 https://trreb.ca/wp-content/files/market-stats/condo-reports/condo_report_Q1-2024.pdf

just 26% being able to afford a single-family home in just four years.[40] People are likely not searching for one-bedroom apartments because they believe it is the best option for them—people are searching for one-bedroom apartments because it is the only option for them. This causes people to need to adapt to the spaces they live within, live in inadequate conditions, and areas where they feel they do not belong.

So, in the neoliberalist solution, "all" parties win. Developers retain their profit margin, their cost per square foot, and residents can find a unit that the banks would grant enough of a loan to be able to inhabit. But even with this solution, cities are still struggling. Residents are upset that there isn't enough homes to live in, that the few cities we do have in the country aren't building fast enough for its population, and even with the homes they are building, that the prices can't seem to be kept down. What developers are hearing are "we need more, we need affordable"

40 Clarrie Feinstein, "Only 26 per Cent of Canadians Could Afford a Single-Family Home Right Now, Report Finds," Toronto Star, December 21, 2023, https://www.thestar.com/business/only-26-per-cent-of-canadians-could-afford-a-single-family-home-right-now-report/article_4b2c7c68-9f7d-11ee-80fd-635897c6b2e0.html.

CONCLUSION

In light of this complex and multi-pronged crisis, the government has initiated an oversimplified solution to primarily build more housing.[41] While affordability is included in the federal government's proposal to "solve" the housing crisis,[42] it still neglects addressing the fundamental tenets of what led to this crisis, in which affordability is a smaller part of the plan, while completing avoiding the discussion of the commodification of the real estate market.

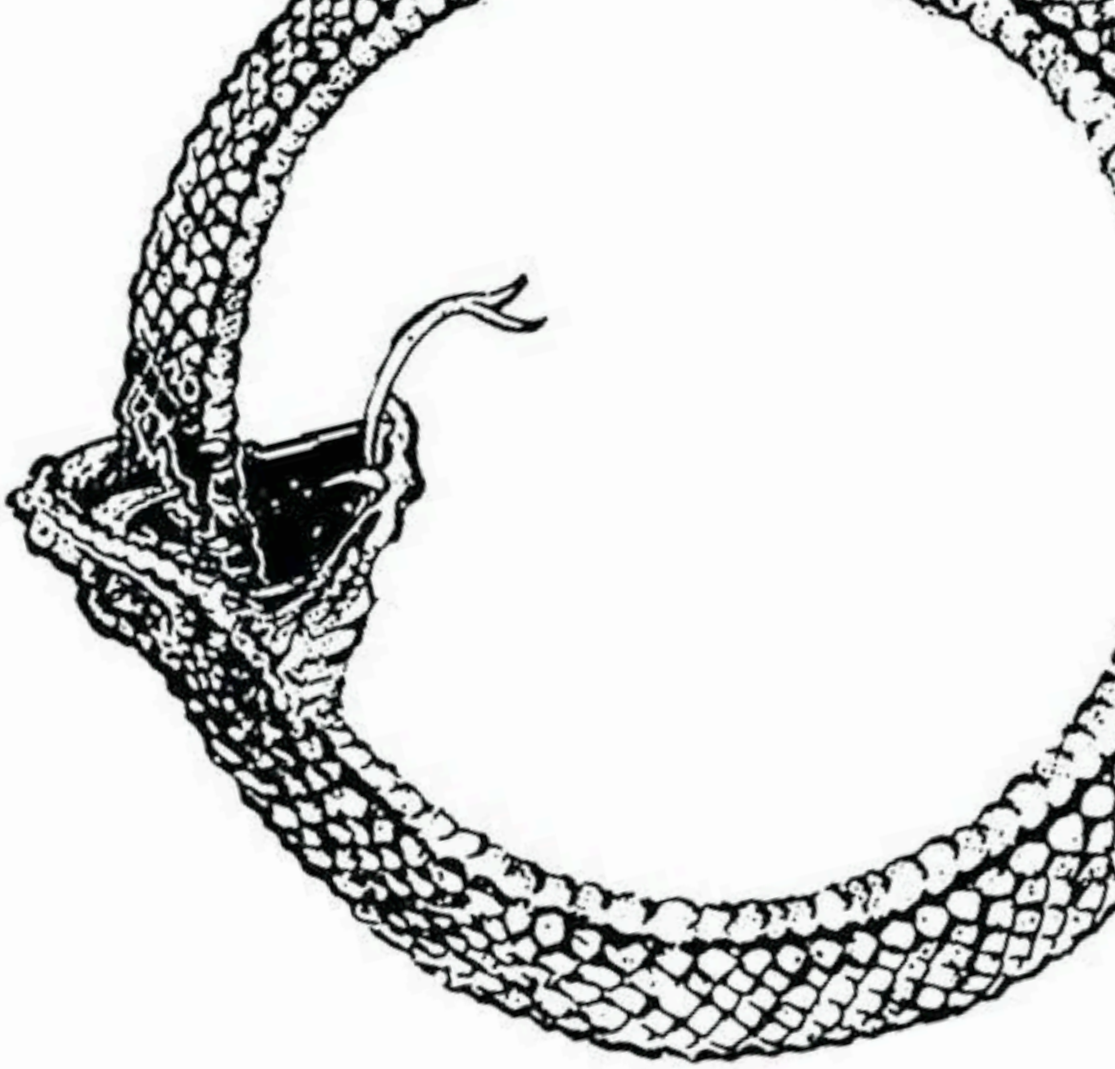
And so, in our time, the governing ideology has been neoliberalism. As an economic framework that prioritizes and supports free markets, deregulation, and privatization, it's an ideology that while not everyone might be cognizant of its presence yet has remained deeply rooted in governance since its introduction the 1980s, to now. It is therefore difficult to address and understand a system that doesn't involve direct human thought, being governed instead by statistics. And, as evidenced by the housing crisis, the market seems to have a difficult time addressing it as well.

With all of this said, we can begin to envision a hyper neoliberalist hallucination if the premise of their policies were to be taken at full force. If the market doesn't have control, neoliberalism can dream to put it up against something that works in a similar way, something that's akin to this decentralized way of working, and will only help to strengthen and support the market. It would argue, then, that Thatcher was correct, in that there really is no society, but individuals with individual needs that we should instead cater to. Living within its hallucination, we should be heavily promoting a decentralized society, and conveniently for Neoliberalism, Artificial Intelligence can help achieve that goal.

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41 Canada, "Housing, Infrastructure and Communities Canada - Solving the Housing Crisis."
42 Canada.

04



THE NEOLIBERALIST PROXY

4.1. Ouroborous, or the snake eating its own tail.

A SMALL TIME CAPSULE

Generative artificial intelligence took the world by storm with the public release of ChatGPT on November 30th, 2022[1]. While generative artificial intelligence had been a developing technology for many years—we had seen absurdist nonsensical AI images floating around the internet as early as 2019—it was only in the fall of 2022 that the wider, non-technologically knowledgeable public became aware of the impressiveness and the gravity of this technology. It was also then that the landscape of technology drastically changed. Now that the AI Pandora's box has been opened, we must live with the consequences that come alongside it.

When I began this thesis, ChatGPT had just been released. By the time of this thesis' completion, generative video is starting to be released for general use with Stable Video Diffusion from Stability AI and SoraAI from OpenAI. Currently within architectural practice, AI tools are slowly being adopted, though there is no definitive tool on the market just yet. With generative AI tools, such as Stable Diffusion, we are able to use AI tools to translate words into images and create fantastical images of architecture. At this stage, AI betrays the influences of its dataset on its sleeve: often, it is easy to see where it draws inspiration; however, there is no dedicated architectural AI platform, though Autodesk—creator of the widely used CAD software of AutoCAD and BIM software Revit—has Autodesk AI in the works. Recently Adobe has introduced AI capabilities within Photoshop and other software within its suite with Firefly AI.

We are witnessing the AI revolution unfolding; even if AI is still in its infancy and we hold little knowledge of what's coming next, groundbreaking AI tools are popping out on a monthly basis, all accessible to the public. Though architecture is still working through its relationship with AI tools, the profession is now observing the race between companies vying to establish themselves as the AI platform that everyone will be using. As technologies improve, the tools used in this thesis will surely become outdated, of an era. I will eagerly be awaiting what will be possible next, as the tools iterate, and improve.

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1 "Introducing ChatGPT," accessed August 25, 2024, https://openai.com/index/chatgpt/.2024, https://openai.com/index/chatgpt/.

DECENTRAL-LAND

One thing is certain: technology longs for decentralization. The invention of the internet promised a type of freedom that humanity had not yet experienced: a space free from any central body of power in an environment where one can have the opportunity to join conversations and assume a level of anonymity that real life cannot offer, as a space that affords a shield from predisposed assumption based on physical appearance. From the moment the internet emerged in the 90s, we became connected on a global scale with unprecedented instantaneous communication. We moved away from letters and phone calls, and toward digital screens on rudimentary social medias. No longer did we have to meet solely in the physical forum, when the digital one now exists, where the promise of communication convenience is enticing and can be accessed by anyone, anywhere, so long as they had an internet connection.

Since the 2010s, the communication landscape has yet again drastically changed—the move from computer browser websites to mobile applications afforded the possibility to receive messages at all hours of the day. Not only that, independent websites have been replaced with conglomerate companies where profit is the sole motive. Websites are now phone applications, and apps are more than ever monopolised by billionaire conglomerates with their goal of increasing shareholder value by colonizing our attention to sell ads. In this hyper-monetised newfound way of being, our modes of communication have now become heavily templated.

The corporatization of the internet has led people to new ideologies and technologies, in an effort to combat this increasingly regulated internet. With the invention and popularization of cryptocurrencies, some people have started to believe that this technology would be the base of a ‘new’ internet, non-reliant on governments or the corporations who govern sites. It was bitcoin, a digital currency, that established an infrastructure to hypothetically allow this to be

possible. The benefit of the currency itself is that it is established using a public ledger, which is a decentralized form of keeping track of transactions made with crypto. Crypto enthusiasts claim the infrastructure for this public ledger, called the blockchain, is applicable beyond cryptocurrencies: those invested in this technology are even advocating for the adoption and proliferation of Web3.0, a new form of the internet entirely running off the blockchain in a decentralized form. As Ethereum.org's documentation puts it—"[Web3] allow[s] anyone to participate without monetising their personal data."[2] It's important to note that Web3.0 isn't actual (as of 2024) and its prospects are looking dubious, a large portion of those heavily promoting this new internet are themselves opportunists looking to earn big profit off unsuspecting participators.

Artificial Intelligence has a bit of distance between itself and the people pushing Web3.0—one is a legitimate revolutionary technology that will change the way we work and interact with the world, while the other is what is essentially a marketing term for crypto-evangelists that lately have been having a tough time separating themselves from consistent Ponzi and pyramid schemes.[3] What they do have in common is their support of decentralization. The newfound use of AI has emboldened Web3 to break from regulatory bodies and embrace the digital free markets, as it borrows the technology of AI to masquerade as a legitimate effort.

These pursued motivations might be a fallout of neoliberalism. There has been a loss of faith in people and society to be able to save itself and using these platforms to promote a sense of society outside of the reach of government. With AI, things can begin to deregulate and privatize, incentivizing a free-market principle operating on its own.

It's a match made in capitalist heaven.

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2 Tim O'Reilly, "Why It's Too Early to Get Excited about Web3," O'Reilly Media, December 13, 2021, https://www.oreilly.com/radar/why-its-too-early-to-get-excited-about-web3/.

3 Molly White, "What Is Web3?," Web3 is Going Just Great, accessed August 25, 2024, https://web3isgoinggreat.com/attribution.

WORKING WITHOUT WORKING

Generative Artificial Intelligence has a convenient overlap with neoliberalism that, as a technology, would be immensely beneficial to the neoliberalist agenda. It thinks without "thinking." It works without "working." It's a technology that uses an aggregate of an unimaginable amount of—and frankly, not fully transparent—database to generate images, give text, suggestions, and think on your behalf. When first being introduced to the public, AI leaned very explicitly on the data: in the mid 2010s, there were many AI chatbots being released for the public to play with, some of the first for its time. Users quickly discovered that, while they were intended to emulate human conversation, it quickly became apparent that it would regurgitate to you what another user had told it with only passing accuracy to the conversation being had. Almost as if it was copy-pasting chats submitted by other users. This led to at best hilarious or absurd conversations, and at worst racist and problematic assertions being made by the AI chatbot.[4,5] AI has come a very long way since, becoming much more sophisticated and nuanced.

Now, AI works in retrieving information in a more natural way, retrieving information directly from its database but making an effort to linguistically connect with us as it reaches into its bottomless canyon of data to find the needle in the haystack that we had asked it to find. In this way, it generates similarly to the way human intelligence does, in referencing its lived experience—in the AI's case, its dataset—to give an output. While there is debate as to whether Artificial Intelligence really 'thinks' when prompted, ultimately this is a technology that is able to work through iterative learning, a process that occurs from both the side of AI, but also the end-user.

A good example of end-user iterative learning would be the process of generating images. To accomplish the generation of a desired image, you start with typing in what you want generated into a text box, this is the 'prompt.' An example of a prompt can be "a cat playing with a ball of yarn." After asking it to generate the prompt, you can realize that while the image of the cat is clear in your mind, the AI might not have generated the way you pictured it—for example, the cat may be playing indoors, when you were envisioning it to be playing outdoors. Realizing your lack of specificity, you then begin to refine your prompts, learning the prompts the AI best responds to. In this way, you are learning its language, learning to communicate with it to produce the most optimal outcome. Professionally, this process is referred to as prompt engineering—aligning themselves to a discipline where your design manifests in a dedicated output. Even prompt engineers won't produce exactly what they want on their first attempt: it takes several iterations of prompt and setting adjustment before you get the desired outcome.

AI technology became refined through iteration. While it seems like AI suddenly

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4 "Meet Tay - Microsoft A.I. Chatbot with Zero Chill," March 23, 2016, https://web.archive.org/web/20160323194709/https://tay.ai/.

5 "Trolls Turned Tay, Microsoft's Fun Millennial AI Bot, into a Genocidal Maniac - The Washington Post," March 25, 2016, https://web.archive.org/web/20160325100714/https://www.washingtonpost.com/news/the-intersect/wp/2016/03/24/the-internet-turned-tay-microsofts-fun-millennial-ai-bot-into-a-genocidal-maniac/.

popped up overnight, it had been in a deep development process that would eventually allow it to be as accessible as it is today. Artificial Intelligence, as a conceptual premise, has been explored in multiple stories over the millennia, as seen through the Greek Automaton's in 400 BCE, animated clay Golems in Judaism originating in 1600s, stories such as Shelley's Frankenstein[6] amongst various other examples. It was British Scientist Alan Turing, however, that was the first to bring the idea of 'intelligence' to the 'computer.'[7] He developed the infamous Turing test in the 1950s, which posited that if the "computer" and human enter into conversation without the latter discerning that they are speaking with artificial intelligence, then the "computer" will have successfully demonstrated intelligence.[8] Shortly afterward at a conference in Dartmouth College in 1956, he formally established the above as 'artificial intelligence',[9] though the technology would not be able to make much meaningful progress for a long time thereafter. The computing power necessary to train these models, would not be made available until the invention of the GPU—"Graphical Processing Unit," now present in all modern computers—in the 1990s. Such computational power was needed to advance AI training, and has led us to the powerful tool we know today.[10]

While computational power helped accelerate the process of AI, continued research led it to become more accurate as a tool by allowing it to generate its own iterative learning process. For example, the learning process in the contemporary text-to-image models of generative AI begins by asking the model to generate some images, which a human then judges the accuracy of the given outputs. This human feedback is taken and implemented into the AI in the form of a reward system, with the aim to make the model predict what human feedback it would receive in a new set of generations. What the AI learns from this exercise then gets inputted back into the model to confirm the changes, resulting in a continuous feedback loop. In this process called fine-tuning, human-feedback has consistently been seen as highly successful method to refine these AI models, accelerate their learning and successful outputs.[11]

It is interesting to note that since the fine-tuning process has a deep and direct relationship with human feedback, AI iterates relationally with human bias. One of the more popular AI models is Stability AI's Stable Diffusion. To create an AI model, and to refine it, a training set must be used in order for the AI model to understand where its pulling from. When Stable Diffusion was launched in 2022, Stability AI unveiled that the core dataset the model was trained on was LAION-Aesthetics,[12] a subset of the LAION-5B dataset—which contains five

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6 Michael Wooldridge, A Brief History of Artificial Intelligence: What It Is, Where We Are, and Where We Are Going (Flatiron Books, 2021).

7 Open Lecture | Neil LeachAlien Intelligence: An Introduction to AI for Architects, 2024, https://www.youtube.com/watch?v=jn1dQZ09ljk.

8 Reza Forghani, Machine Learning and Other Artificial Intelligence Applications, An Issue of Neuroimaging Clinics of North America, E-Book: Machine Learning and Other Artificial Intelligence Applications, An Issue of Neuroimaging Clinics of North America, E-Book (Elsevier Health Sciences, 2020).

9 Forghani.

10 Forghani.

11 Kimin Lee et al., "Aligning Text-to-Image Models Using Human Feedback" (arXiv, February 23, 2023), http://arxiv.org/abs/2302.12192.February 23, 2023

12 "Stable Diffusion Launch Announcement," Stability AI, accessed October 18, 2024, https://stability.ai/news/stable-diffusion-announcement.

billion text-image pairings for training[13]—that prioritizes "high visual quality."[14] This means, in training LAION-Aesthetics, the core question being asked of AI to train the dataset was to answer what rating people would give when asked: "How much do you like this image on a scale from 1 to 10?"[15] At this basis, the fine-tuning process begins to make some assumptions about what image is 'liked' or isn't 'liked,' inviting subjectivity, and by extension, problematic biases. After all, for the AI to predict what a person would deem as a 'likeable' image, it would have to be based off the researchers that inform the AI what they like or dislike, which, depending on the sample size of the researchers fine-tuning, may reflect a singular specific worldview if not consciously addressed in the training. In this way, AI carries with it the potential to transfer human bias, whether the human is conscious of their biases or not. By using these sets within the training processes, AI has the possibility to retain problematic biases as long as the technology continues, something which will be forever foundationally within itself as it continuous to iterate and develop further.[16]

This information is only known because Stability AI disclosed the sets the model was trained on. For most other models, the training sets are unknown, so while not all training sets might have an obvious bias such as LAION-Aesthetics, we simply will not know to what degree the bias in other models present themselves.

An interesting phenomenon occurs though, especially in the earlier, less refined iterations of AI; it will sometimes act and generate beyond its input data. When generating, AI will sometimes provide outputs that seemingly invent answers to satisfy the input, even if the answer is not related to its input data, and is factually wrong.[17] AI researchers refer to this as "AI Hallucinations," as AI has been observed to provide false information on its own. For example, in the case of Large Language Models such as ChatGPT, it can 'hallucinate' responses to questions that are outside the realm of fact, yet pass them off confidently. [18] From personal experience, I had asked GPT3.5 for sources similar to a specific paper I had been reading. In response, it provided me five; three of them were proper, peer-reviewed papers, but two were completely made up. The names, title of the paper, and abstract were all completely fake, passed off as equally real as the three actual papers. This can be very problematic when AI is used in real applications in which incorrect information can lead to real world consequences, such as AI medical imaging models misidentifying symptoms in a patient leading to incorrect treatment—as it currently fares better identifying race and gender rather than predicting the diagnosis of diseases[19]—or, in a recent case, an attorney citing hallucinatory cases ChatGPT had outputted when defending their cli-

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13 "LAION-5B: A NEW ERA OF OPEN LARGE-SCALE MULTI-MODAL DATASETS | LAION," accessed October 18, 2024, https://laion.ai/blog/laion-5b.

14 "LAION-Aesthetics | LAION," accessed October 18, 2024, https://laion.ai/blog/laion-aesthetics.

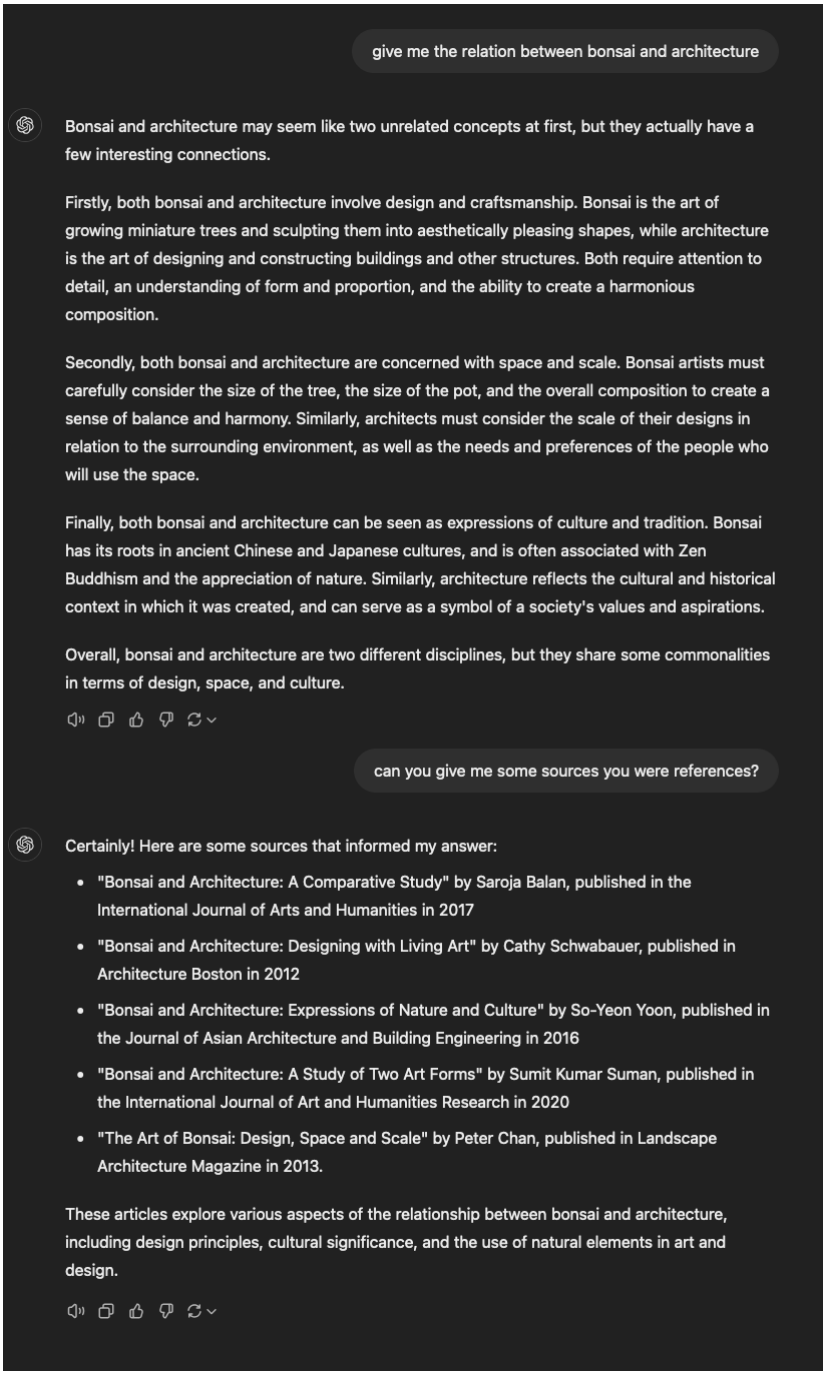
15 "LAION-Aesthetics | LAION."

16 Susan Leavy, Barry O'Sullivan, and Eugenia Siapera, "Data, Power and Bias in Artificial Intelligence" (arXiv, July 28, 2020), http://arxiv.org/abs/2008.07341.

17 Alex Cranz, "We Have to Stop Ignoring AI's Hallucination Problem," The Verge, May 15, 2024, https://www.theverge.com/2024/5/15/24154808/ai-chatgpt-google-gemini-microsoft-copilot-hallucination-wrong.

18 Karen Weise and Cade Metz, "When A.I. Chatbots Hallucinate," The New York Times, May 1, 2023, sec. Business, https://www.nytimes.com/2023/05/01/business/ai-chatbots-hallucination.html.

19 Yuzhe Yang et al., "The Limits of Fair Medical Imaging AI in Real-World Generalization," Nature Medicine 30, no. 10 (October 2024): 2838–48, https://doi.org/10.1038/s41591-024-03113-4.



4.2. Screenshot of a conversation between ChatGPT-3.5 and myself as an example of AI Hallucination in 2023. In an exercise of asking ChatGPT to cite its claimed, four of the five sources were completely hallucinated, with the fifth, by Peter Chan, being based in reality, having written a book on Bonsai and being a bonsai artist, but not having written the article that ChatGPT claims he had in 2013.

ent in court.[20] From personal observation, AI models always have an answer, and will not respond with a simple "I don't know." As AI hallucinations seem inevitable, conflicting ideas on how to proceed with existing AI models have become quite contentious: do they allow AI to live in its reality while being able to be more creative in drawing relationships between information together, or do they modify the models to remain strictly factual and within reality, but reduce their applications for extrapolation?[21]

Iteration has also been a central feature of the growth of AI technology. In fact, this sudden acceleration of AI capabilities is worrying researchers. The growing need for more data to train and refine these tools has been met by an increase in online data scraping. However, as these tools become better and outputs more realistic, more and more AI images cycle back into the internet. This ends in an Ouroborotical dilemma: Artificial Intelligence, now being trained on other AI outputs, subsumes itself, leading to what scientists deem as model collapse.[22] As models prioritize the most average output, by incorporating other AI generated inputs into the data set, the outputs gradually become more and more similar—until completely homogenized, to the point where the AI cannot understand what makes an object different from another, because everything is that thing.[23]

In this way, its success is its downfall. As a system, it keeps rolling, bound to be consumed by itself. As a snake, it eats its own tail.

The Ouroboros can be a good symbol for the perpetuation of Neoliberalist policy as well. When new public management policies were established following the dismantling of welfare policies and deregulation of established policies such as mortgage financing, neoliberalism allowed for the real-estate market to commodify. With the incentivization of housing as investment assets, citizens buy more property, reducing the amount of housing available for those looking to buy as primary residence. Private corporations desire and are incentivized to operate to profit, and with the lowered housing stock, build for the demand—most of which is property accessible for investment. This results in the construction of as many individual properties as possible geared towards individual buyers, a subsequently minimized floor area per unit, and the reduction of proper housing stock on the market once again. The system therefore appears to be self-perpetuating: just like the snake, just like AI, it takes someone—the government—to intervene and pry its jaws open, releasing it from its misery. But nothing happens, and the system continues. While there are human agents within this perpetuating the cycle, at some point, it almost becomes automatic, thoughtless; the at the end of the day, the profit generating machine is the sole priority.

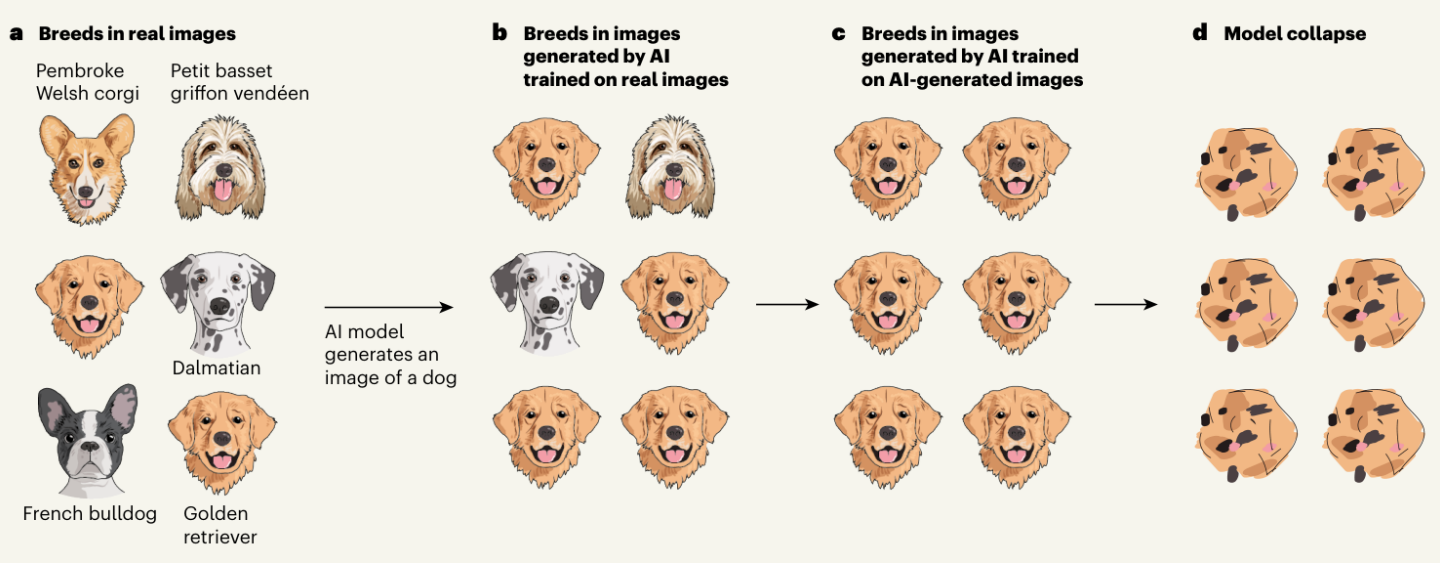
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20 Molly Bohannon, "Lawyer Used ChatGPT In Court—And Cited Fake Cases. A Judge Is Considering Sanctions," Forbes, accessed October 18, 2024, https://www.forbes.com/sites/mollybohannon/2023/06/08/lawyer-used-chatgpt-in-court-and-cited-fake-cases-a-judge-is-considering-sanctions/.

21 Cranz, "We Have to Stop Ignoring AI's Hallucination Problem."

22 Devin Coldewey, "'Model Collapse': Scientists Warn against Letting AI Eat Its Own Tail," TechCrunch, July 24, 2024, https://techcrunch.com/2024/07/24/model-collapse-scientists-warn-against-letting-ai-eat-its-own-tail/.

23 Coldewey.



4.3. Diagram of Model Collapse process, 2024. Courtesy of Nature.

So, in their common interest of iteration without consideration for output, neoliberalism and Artificial Intelligence share a sort of kinship. AI can help support neoliberalism, not only through its ability to look out for the bottom line via the replacement of labour with entities that do not need to be paid hourly, but also through its aligned goal.

In its neoliberalist hallucination, AI can work as a proxy for neoliberalist development. If neoliberalism wants to become more effective, hyper independent and resourceful, it can turn to AI as an ally to continue developing, better, faster, and more efficiently. Because both are thoughtless about the individual outcome in their outputs, with the outcomes not necessarily representing the wants of humanity, but simply what the data shows them. Their outputs are made by people, who don't really care about people.

MINIMUM DWELLING

Neoliberalism craves the optimization that AI can provide. In fact, Neoliberalism has already been exploring this optimization through a transition into a minimalistic form of dwelling in the micro-room. Of course, the typology of the small, micro-room is not one invented by neoliberalist, but one that has been strongly co-opted by them, in the interest of supporting their agenda and imposing their idea of dwelling.

This type of dwelling can be potentially traced back to the inception of the Monastic cell in 4th Century AD within the Middle East, but quickly adopted by subsequent monastic communities that observed hermetic lifestyles.[24] It was architectural historian Georges Teyssot that noted that the Carthusian's claim to this hermetic way of living and their transformation of it into an organized, one-person 'house' that would allow these communities to live together but simultaneously apart. This was the foundation for the modern-day typology of the apartment.[25]

With the increase in migratory middle and working-class folks travelling the States for work in the late 19th and early 20th century, the need for affordable lodging sharply rose. This in turn gave rise to the typology of the rooming house,[26] which echoed the highly individualized form of 'living together yet apart' into the modern day. Unlike other newly developed typologies such as the "palace hotel," advertised as a more expensive, easy overnight lodging for travelling workers looking for comfortable lodging (or for wealthy individuals who were looking to live without the requirement of maintaining a physical home)[27], this form of accommodation was cheaper, provided the bare necessities of living, but lacked specific amenities such as a kitchen.[28] From the 1910s onward, the hotel would become a mainstay, and would even inspire the soviet housing model of small individual cells of around eight to nine square meters within a larger structure called the dom-kommuna, provided as an alternative to the kommunalka which were otherwise overcrowded bourgeois apartments housing multiple families.[29]

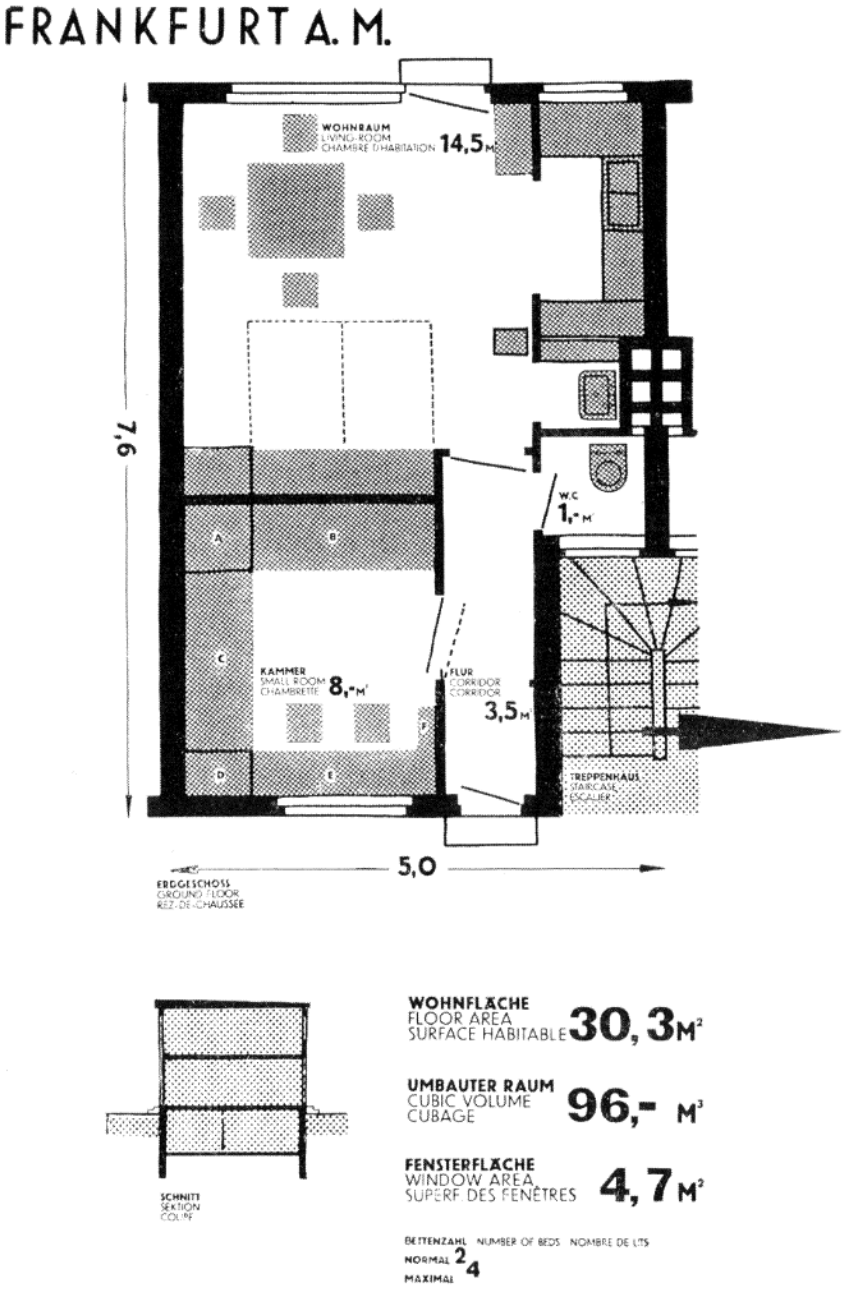
The establishment of these typologies of alternate small living—the boarding room, the hotel, and the rooming house—and their becoming commonplace would then influence the International Congress of Modern Architecture (abbreviated to CIAM) to seriously consider and promote this minimalistic way to live in their 2nd conference in 1929. Existenzminimum was proposed as a way to solve the post-war housing crisis by facilitating the drastic increase of housing availability through the reduction of square footage, which would help accommodate buidling more housing.[30]

We now find ourselves almost 100 years later from this proposal, now in this

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24 Pier Vittorio Aureli and Martino Tattara, Dogma, 2002 2021: familiar / extrano: familiar / unfamiliar, ed. Fernando Márquez Cecilia, El Croquis, 208 = 2021, 1 (Madrid: El Croquis Editorial, 2021), 147.
25 Aureli and Tattara, 147.
26 Aureli and Tattara, 151.
27 Aureli and Tattara, 149.
28 Aureli and Tattara, 151.
29 Aureli and Tattara, 153.
30 Aureli and Tattara, 143.

new neoliberal era, taking note from the lessons learned of Existenzminimum. While it is important to be able to question and challenge the status quo of modern-day typology, that is not the concern of the neoliberalist, though some may use it as a misdirection of their true intention. Neoliberalism's hope is to co-opt the minimum dwelling, gentrify it so that instead of being seen as a typology that is outside the purview of society, it becomes incorporated and normalized. Ideally, everyone works to exist minimally, maximizing work productivity while the dwelling is deprioritized.



4.4. A minimum floor typology exhibited at the 2nd CIAM in Frankfurt, 2011, Courtesy by Quiring, Voigt, Cachola Schmal, and Herrel.

THE NEOLIBERALIST UTOPIA

This thesis approaches minimum dwelling on three levels. First, through the utopian context, as a question of how we are intended to live, how much we need to live, and what, spatially, it is that we need to live. Second, through the neoliberalist context and how it adopts the language of the existenzminimum, but instead of questioning what is the minimum room needed for us to live, it adopts the fact that it is needed for profit. And third, through the context of Artificial Intelligence, in all its efficiency and ability to minimize for the most general population without considering the individual's approach.

With these pieces in place, we can begin to see the future—the hallucination neoliberalism brings up in order to solve the problems of the housing crisis. In its perspective, the systems that neoliberalism has put into place are now being emboldened and iterated by techno-enthusiasts who are either too naïve to see it, or too money-driven to care. Creating metaverses touted as online utopian spaces where decentralization and cryptocurrency can exist are common rhetorical threads. Though starchitects like Zaha Hadid Architects have decided to invest time into crypto metaverse projects such as 'Liberland,'[31] like the utopia in its realization—in the dynamic state—it seems to be highly unstable and does not live up to what it has promised to be.

The goal of utopia is to use visionary means to explore the projected future of our times. How can we employ the tool of utopia in a way that allows us to examine the failures of the world in a safe environment, within the world of paper architecture?

31 "World – Liberland Metaverse," accessed September 12, 2024, https://world.liberland.org/.

Addressing AI in a utopian system, thematically, may seem like a paradoxical choice. Utopia is planned at a grand scale, constructed as a whole and furthermore interpreted as a whole ideological faction. It is a hopeful endeavour that, in stasis, is perfect. Artificial Intelligence is the opposite. It is a piecemeal system, made up of aggregated bites of information drawn together to compose its whole. Unlike utopia, it is not centralised, but processual, operating with a strongly dynamic system from which it cannot part.

This contrast is how one emboldens the other: Artificial Intelligence finds itself in the utopian camp. Some may argue it is dystopian—it has clearly been the source of fear for many science fiction lovers for several decades now. But its ability to sustain itself, iterate out of a problem, and make decisions internally is exactly why the two need to be examined side by side. Perhaps Artificial Intelligence is the response to utopia that utopia needed; it fills out its weakness of dynamism, bringing the two together in a great harmony that allows us to observe both in tandem.

With minimal neoliberalist dwelling, and AI working as its proxy, it only makes sense that the city begins to expand continuously, motivated by the need to grow housing that's affordable but does not lose value for the developer. Neoliberalism can propose that people don't need their dwellings much anyways when they spend so much of their time at work, and if people want to actually "own" something, why not live with several (hundred) roommates? Rooms can expand, they can wrap around service cores that populate the city, prime real estate. It is now evident how GenAI can ally with and reproduce the neoliberalist mechanism within the real estate market, through the thoughtless, iterative output.

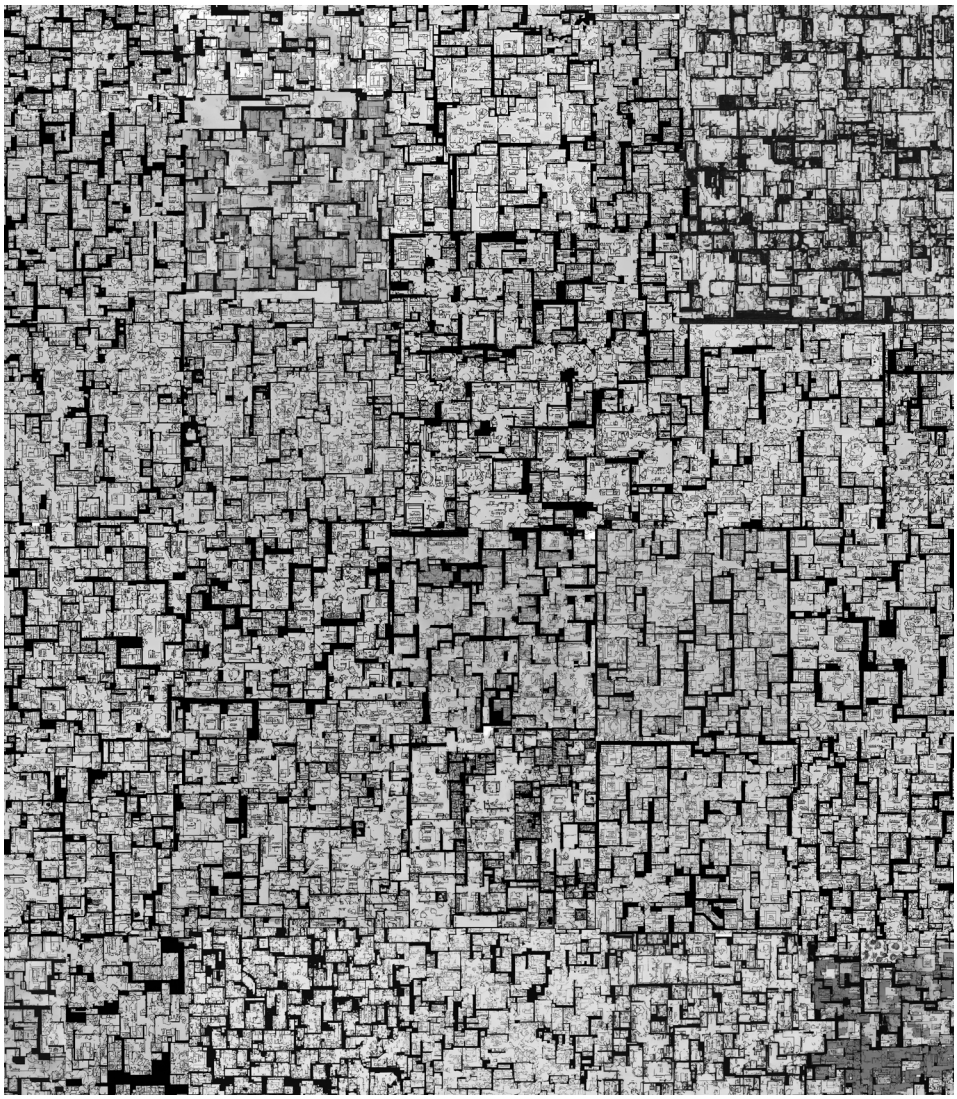
This thesis therefore proposes how the agents of Artificial Intelligence, Neoliberalism and utopia come together, by demonstrating how neoliberalism imagines utopia as *The City of Rooms*.

05



5.1. AI generated image. A preview of a generation into the design found in this chapter. Generated by DALL-E, in conversation with ChatGPT about the utopia.

THE NEOLIBERAL HALLUCINATION



5.2. Preview of collage of the outcome of the methodology section of this chapter. AI generated image created with Stable Diffusion using custom LoRAs.

The City of Rooms is the manifestation of this neoliberalist hallucination. In this speculative utopian city, housing has become a commodity, as the room becomes optimized to a unit of aggregation, while the notion of the building becomes completely obfuscated. The room, previously an enclosed space within a building, is now considered the primary unit of the mass, with circulation elements being found in the core. In this way, the neoliberalist dream steals the language of the collective, optimizes the co-living model and transforms it into a profit motivated endeavour.

The use of AI emphasizes the neoliberalist act of mass generation for efficiency, while neglecting the care and attention of the actual floorplan and an individual's experience within them. As Hélenè Frichot and Helen Runting state, "we have become an archipelago of insular entities, a seething, multiplying human foam exhausting global territories,"[1] and if housing needs to support its supply, and if architecture is meant to support the individual in the intimate way, then neoliberalism argues that it too should turn to the neoliberalist proxy to solve the housing crisis, and create an expansive foam of buildings, consuming the cities in order to solve the crisis.

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1 Hélène Frichot and Helen Runting, "In Captivity: The Real Estate of Co-Living," in Architecture and Feminisms (Routledge, 2017).fall apart, or become emphatically unsupportive. Against the backdrop of what Isabelle Stengers has called 'the coming barbarism', the environment (both constructed and 'natural'

GLOSSARY

Artificial Intelligence (AI) — Technology that was developed to simulate human intelligence. AI is a term that had developed since its inception in the 1950s, and is a catch-all for various concepts of computers learning and problem solving similar to humans. For example, the AI research being done in the in the 1980s is called Machine Learning, which would have AI learning from historical data to make predictions and/or decisions. This would develop into research called Neural Networks, which was modelled after the brain's structure to process and analyze complex data. On the basis of Neural Networks, in the 2010s, Deep Learning was introduced, which was advance Neural Network models to mimic human brain function and simulate complex decision-making, which would lead to Generative AI, the type of AI interested in creating original content.[2] (See *Generative Artificial Intelligence*)

AI Hallucination — In some instances when asking an LLM output an empirical response, the user might encounter inaccurate or incorrect responses. Due to the nature of AI being a predictive and pattern-seeking tool, it will sometimes inaccurately predict an outcome. It is a well-known issue that is currently unknown how to completely eliminate by AI researchers.[3]

Automatic1111 — An open-source Web interface that runs the Stable Diffusion model. It is one of the more accessible ways to generate AI images for free, and is popular due to its more intuitive interface over other WebUI generative AI platforms. This thesis uses Automatic1111 to generate images.[4]

CFG — Classifier-free guidance. A parameter within Stable Diffusion that allows the user to adjust how closely the output is required to follow the input. A CFG of 30 means that it must very faithfully follow the prompt, whereas a CFG of 1 means it is allowed to deviate slightly.[5]

ChatGPT — A chatbot developed by OpenAI using their GPT Large Language Models. Currently one of the most popular AI chatbots, largely due to the fact that it was one of the earliest, successful examples of a publicly accessible AI.

> ***GPT-3/3.5*** — Generative Pre-trained Transformer, a type of model with the aims to generate human-like text, developed by OpenAI.[6] While OpenAI had been developing the GPT model from GPT-1, it was GPT-3/3.5 that ChatGPT was using when it was first available when it had been released to the public. Also, it is the version that is available as the free tier when using ChatGPT. Now it is considered outdated, as subsequent iterations of the GPT-4 are much more capable, but GPT-3/3.5 still performs well for the average user.

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2 What Is Artificial Intelligence (AI) ? | IBM," accessed January 31, 2024, https://www.ibm.com/topics/artificial-intelligence.

3 What Are AI Hallucinations? | IBM," September 1, 2023, https://www.ibm.com/topics/ai-hallucinations.

4 AUTOMATIC1111, "Stable Diffusion Web UI," Python, August 2022, https://github.com/AUTOMATIC1111/stable-diffusion-webui.

5 "Guide to Stable Diffusion CFG Scale Parameter | Getimg.Ai," accessed October 21, 2024, https://getimg.ai/guides/interactive-guide-to-stable-diffusion-guidance-scale-parameter.

6 "What Is GPT-4 and Why Does It Matter?," accessed October 21, 2024, https://www.datacamp.com/blog/what-we-know-gpt4.

GPT-4/4o — Generative Pre-trained Transformer, version 4/4o. It is the upgraded model that OpenAI released for ChatGPT use in March, 2023 that is more factual and less hallucinatory than its previous iteration, GPT-3.5.[7] Now it is used on the paid tier of ChatGPT. While all GPT models can be used beyond ChatGPT, for the purposes of this thesis, the use of GPT-3.5 and 4/4o usage is purely based within OpenAI's chatbot, ChatGPT.

Checkpoint — The trained data set genAI, specifically Stable Diffusion, references when generating outputs. Checkpoints are used with image-based models. Checkpoints, often several gigabytes worth of data (can range anywhere from two to seven gB on an average checkpoint), are models that can be downloaded While the file of the checkpoint itself does not contain the images that were used to train the checkpoint, it contains all data required for the generative AI model to read to understand what the potential prompt is asking for.

Data Set — The data of which genAI refers to when generating an output. This differs from a Training Set, which is used to teach a genAI tool of how to generate, in some genAI models such as Stable Diffusion, data sets can be switched depending on the type of desired output. In Stable Diffusion, a data set is called a *checkpoint*.

Fine-Tuning — The process of refining a training set for optimal outputs produced by a model. Unlike training, fine-tuning is the refinement of a model after it had been trained. Researchers can fine-tune the model itself, but there are other ways to fine-tune a model, such as through a *LoRA*.

Generative Artificial Intelligence (genAI) — Refers to Deep Learning Artificial Intelligence models that generates an original output based on a user's prompt. There are many forms of genAI, such as Large Language Models (see *LMM*), or text-to-image/image-to-image models (see *Txt2Img* or *Img2Img*). More recently, it is able to begin generating video and audio.[8] Often, generative AI can be colloquially called just AI, though there is the distinction of non-generative AI models that are trained for algorithmic and problem-solving uses, rather than generative ones. (see *Artificial Intelligence*)

Generation — Output of a genAI inquiry, whether that's a text based output or an image based one. The medium of the output is dependent on the AI model being used—if it's an LMM, the output will be text, if it's a text-to-image model, the output will be an image.

GPU — Graphics Processing Unit. A GPU is a piece of hardware found within a computer that processes the Graphical output and requirement of software. Initially developed for the gaming industry, it was designed to accelerate the rendering of 3D graphics. With time, it has found many additional applications beyond gaming, and used to accelerate additional workloads in high performance computing, such as deep learning.[9]

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7 "GPT-4," accessed October 21, 2024, c.

8 "What is Artificial Intelligence (AI) ?"

9 "What Is a GPU? Graphics Processing Units Defined," Intel, accessed October 27, 2024, https://www.intel.com/content/www/us/en/products/docs/processors/what-is-a-gpu.html.

Guidance Factor — See *CFG*.

Image-to-Image/Img2Img — A method of image generation in which the input, instead of the conventional text prompt, is an image. This can result in modification of the original input image, or having the output take the original inputs shape vaguely, depending on the settings used when generating. Automatic1111 offers Img2Img generations.

Kohya SS — A WebUI trainer to train LoRAs.

Large Language Models (LMM) — Language Based AI models that primarily work in a text-based medium. The most popular iteration of this currently is OpenAI's ChatGPT.

LoRA — Low-Rank Adaptation, a more recent method of fine-tuning a model developed by Microsoft to be more resource conservative in comparison to traditional ways of fine-tuning. Known as a reparameterization-based method of fine-tuning, it does not adjust the original model's data, but adds a new set of data to be prioritized instead of the original.[10] In the genAI community, LoRAs tend to be used in order to stylize a generation in a specific way. For example, if one wants to use a checkpoint that specializes in portraits, one may find a LoRA that specializes in moonlight portraiture as an augmentation to the original model. In this way, it is an efficient way to get specific results without having to train a model/checkpoint.

Model Collapse — Occurs when AI models are trained on AI data. More on this on page 57.

Output — See *Generation*.

Prompt — An input into a genAI model. Most often in text form, but can be vary in some cases, such as img2img generations.

Stable Diffusion — A Denoiser image-based algorithm developed by Stability AI. Currently, it is the most accessible and customizable image-based generative AI tool available.

Text-to-Image/Txt2Img — This form of genAI uses text as an input to generate an image output. There are two general ways to write inputs for text-to-image models; either through keywords (i.e. "dog, brown, spots, large, sitting") or sentence structure (i.e. "a large brown dog with spots that is sitting.") The way the prompt should be structured is often based on how the checkpoint has been trained.

Training Set —Example data used to train and fine-tune a model. Different from a data set, which is an active reference in generations.

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10 For the scope of this thesis, it is not necessary to understand the specifics of how LoRA fine-tunes a model, therefore the explanation is kept general. To learn more specifics, visit the "Reparameterization" subheading of IBM's "What is Fine-Tuning" article.
"What Is Fine-Tuning? | IBM," March 15, 2024, https://www.ibm.com/topics/fine-tuning.

WebUI — Web User-Interface. While there are multiple ways to work with genAI tools, the most accessible to the public are Web-based User Interface tools. Often open source, this allows for a user to simply use a browser to generate outputs. Depending on the tool (for example, Automatic1111, used in this thesis, or ComfyUI are both web-based Stable Diffusion UIs. They both produce outputs using the Stable Diffusion model, but their workflow differs, which allows for people to choose what better suits them).

AI METHODOLOGY

Generative Artificial Intelligence, being able to understand and visually reproduce the neoliberalist mechanism, becomes the architect of this utopia. To recount its narrative, I defer to the Stable Diffusion and ChatGPT models to generate designs and make design decisions as I curate, clarify, and translate its intentions into a more conventional architectural language. If genAI is the architect, then my role within this project is the general contractor of the paper architecture. Totally, this the neoliberalist hallucination.

To understand neoliberalism's hallucination, I investigate three things: one, how its vision interacts within the context site, which would inform; two, how it envisions minimal living through the rooms; and three, how it sees society occupying those minimal spaces.

Context: Fine-tuning

As a tool of spatial organization, the floorplan is an effective drawing medium used to understand intent for a space. Because the intent of the City of Rooms was to explore genAI's vision of organizational structures, it was important to collect relevant floor plan data for the AI to work with. To specifically contextualize this work within site, I needed to include data from existing condos within Toronto to be used within the AI data set. The goal of this was to observe what generative AI would be able to generate when given Toronto's condo floorplans as a dataset.

To accomplish this, it was necessary to train a LoRA that would subsequently be used to generate outputs with Stable Diffusion.

Stable Diffusion, a generative AI tool that transforms text prompts into images, requires a dataset to reference in order to generate an image. Referred to as checkpoints, these datasets are large files that were trained using image and text pairs—that is, images were chosen (or scraped from the internet), and a text file was created alongside it to describe the image, so that when we write prompts in text, Stable Diffusion knows which set of images it needs to reference for the output. The process of this image and text alignment is a big endeavour: as an example, a popular checkpoint, "SDXL 1.0" used over 100 million images to train its model,[11] meaning for every image required a text pair describing the image. Though this can and is done by humans, at datasets that large it is likely that the text-image alignment is done by AI and potentially checked only later by humans, and therefore is potentially much more broad and sometimes inaccurate.

While it was possible to simply generate floorplans based on default checkpoint models, it was important to use actual data from the observed site to precisely observe and translate the act of neoliberalism within the setting of the research. However, there are several reasons why training a checkpoint would not be the right training method for this task. Checkpoints represent a sort of broad cultural value to the generation: it should be able to generate anything you ask it to, whether that is a cat, a house, a ball, a stethoscope, etc. However, when it comes to the task of something specific, such as Toronto condo floorplans, it both does not have the data within the checkpoint, and it would be much more difficult to reference the floorplans specifically amongst the other data, especially since I wanted to ensure a more accurate text-image alignment for what I wanted to generate.

At the size of dataset and for the functional purposes of what I am running on, training a checkpoint dataset would be an impossible for the scope of this thesis—the intense hardware requirements alone would make this task impossible for the average person, myself included. However, there are options to still be able to control what data to reference without requiring to re-train an entire dataset from scratch.

So, while there are other multiple ways to fine-tuning checkpoints, I opted to

11 Sks, "'SDXL 1.0: A Great Leap Towards Outperforming Competitors in the Mid-Journey of Image Generation,'" Medium (blog), July 26, 2023, https://medium.com/@s1610.2003/sdxl-1-0-a-great-leap-towards-outperforming-competitors-in-the-mid-journey-of-image-generation-bce322dace9e.

choose to finetune by training LoRA. Low Ranking Adaptation, abbreviated to LoRA, is a form of fine-tuning that trains a much smaller model and appends it to a checkpoint of the user's choosing. As a result, when generating while using a LoRA, the generation draws from both the checkpoint data and the LoRA data, but, from experience, prioritizes the data within the LoRA in generating when using its prompt. Using a LoRA therefore is a great option for those that are limited by computer hardware capability—ie. do not have the top of the line, state of the art computer setup—and that are training on a much smaller dataset than is otherwise required for a checkpoint. Out of the options of model augmentation—such as dreambooth and textual inversions—LoRA is least hardware intensive method, good at understanding more abstract text-alignments, and good for generally smaller datasets, which for the scope of this thesis work, is why LoRA was chosen.

To train a LoRA, it's necessary to collect images that act as your data. The more images a dataset has, the more accurate and consistent the results of an output will be. The benefit to LoRA is that as little as 30 images can be used to train it. However, the more images, the stronger the outputs will be when the LoRA is used. Ideally, LoRAs do not need a vast database to be successful, so generally the recommendation is between 50-200 images. What's most important in this process is the text to image alignment process. Once these images are selected, each image is labelled thoroughly in a separate text file that is associate directly to the text file's respective image. These labels, in a way, are used to 'teach' the generative AI what it was looking at. The more accurate the text-image alignment is, the more successful the outputs be. Once each image is labelled, it is processed through Kohya SS, which trains the dataset and formats it into a file ready to be used with Stable Diffusion.[12]

For the City of Rooms, I experimented with two different LoRA files, changing the text-image alignment to work with a different outcome.



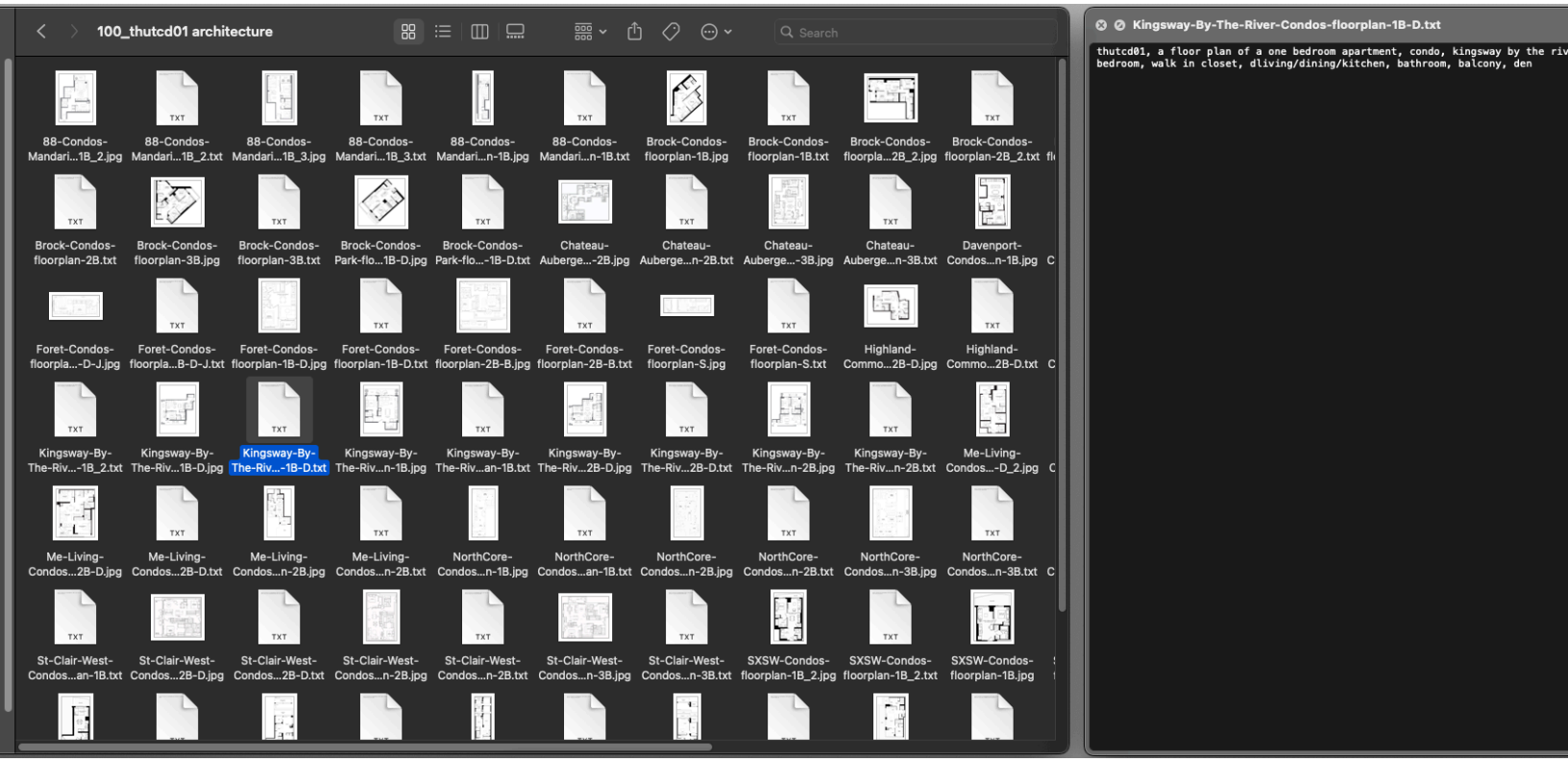
12 For a more in-depth explanation into LoRAs and how Kohya SS trains them, the following article provides good documentation.
"Explaining LoRA Learning Settings Using Kohya_ss for Stable Diffusion Understanding by Anyone," GitHub, accessed October 24, 2024, https://github.com/bmaltais/kohya_ss/blob/master/docs/LoRA/options.md.



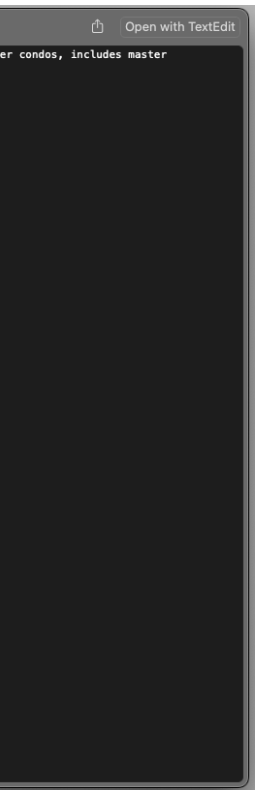
5.3. AI generated image with the same prompt, “a floorplan of one bedroom apartment” with a LoRA applied of Thutcd01, a LoRA developed for this thesis based on Toronto condo floorplans. It is evident that the LoRA’s fine-tuning is present, even when the same checkpoint is used.



5.4. AI generated image using the v1-5 Pruned Emaonly Checkpoint, the default checkpoint loaded into Automatic1111. This generation’s prompt was “a floorplan of one bedroom apartment.”



5.5. Screenshot of data collecting for LoRA training. This screenshot depicts all of the collected images of Toronto condominiums collected, with a text file appended description of each floor plan.



Context: Data

To start this process, I collected 55 floor plans from thirteen condominium projects currently being sold within Toronto. Care was taken to select a diverse selection of condominiums, making sure to include a building from varying locations in the city. Additionally, to reflect the distribution of floorplan types that are being sold within the individual buildings, a variety of floorplans within each building were selected, ranging from studio apartments to three-bedroom apartments.

When labelling the floorplans, I described each floorplan with how many bedrooms the apartment contained, which amenities and spaces were promised based off the developer's specifications. Each description would read something in the vein of: "a floorplan of a [one/two/three] bedroom apartment, condo, includes [bedroom, ensuite bathroom, den, etc.]." When all of the floorplans were labelled, the fine-tuning process was ran, with a lot of adjustment and trial and error to figure out the right settings for the computer it was being trained on. When the right settings were found, after three hours, the model was successfully fine-tuned. This would produce a file, the LoRA, which was named "thutcd01."

Rooms: Generation

The next step was to generate the AI floorplans. The Stable Diffusion model was selected to produce these generations due to existing open-sourced web-based UI—Automatic1111 was used for this thesis—that allows you to navigate and produce Stable Diffusion generations. The benefit to these UIs are their versatility in customizing the input, by not just being able to input your prompt (a text-based input that tells the AI what you want to generate) and negative prompt (an input that tells the AI what you want to avoid in the generation, common negative prompts being 'distorted text,' 'low resolution,' or 'ugly hands') but also adjust other factors such as output image size, Guidance factor, the Sampler, amongst varying other settings. While it takes much less effort to produce refined images in other models such as Midjourney and Dall-E, the nature of Stable Diffusion's highly customizable inputs allows for more control from the end user over the generations being produced, as well as controlling which checkpoints Stable Diffusion is referencing, as opposed to the other models.

The first test that was done was to apply the LoRA in Stable Diffusion, and testing the output of a prompt with the LoRA applied and the output of one without. A prompt of "A floorplan of an apartment" without the LoRA applied produced a top down, 3-dimensional rendered plan of a generic apartment, whereas when the LoRA was applied, an image closer to those of the inputted floorplans into the LoRA was generated, meaning the training of the LoRA was successful. After this, the LoRA was tested to see what it generates under specific prompts. It was quickly discovered that the term 'floorplan' needed to be applied in order for the data from the LoRA to be prioritized, likely due to the fact that all of the labelled data contained within thutcd01 contained the word 'floorplan.'

With this success, a subsequent iteration of thutcd01 was produced. In its first iteration, the labelled dataset was purely objective, describing exactly that what was found within the floorplan, what the developers were advertising. However, to represent a social dimension of this created utopia through the generations,

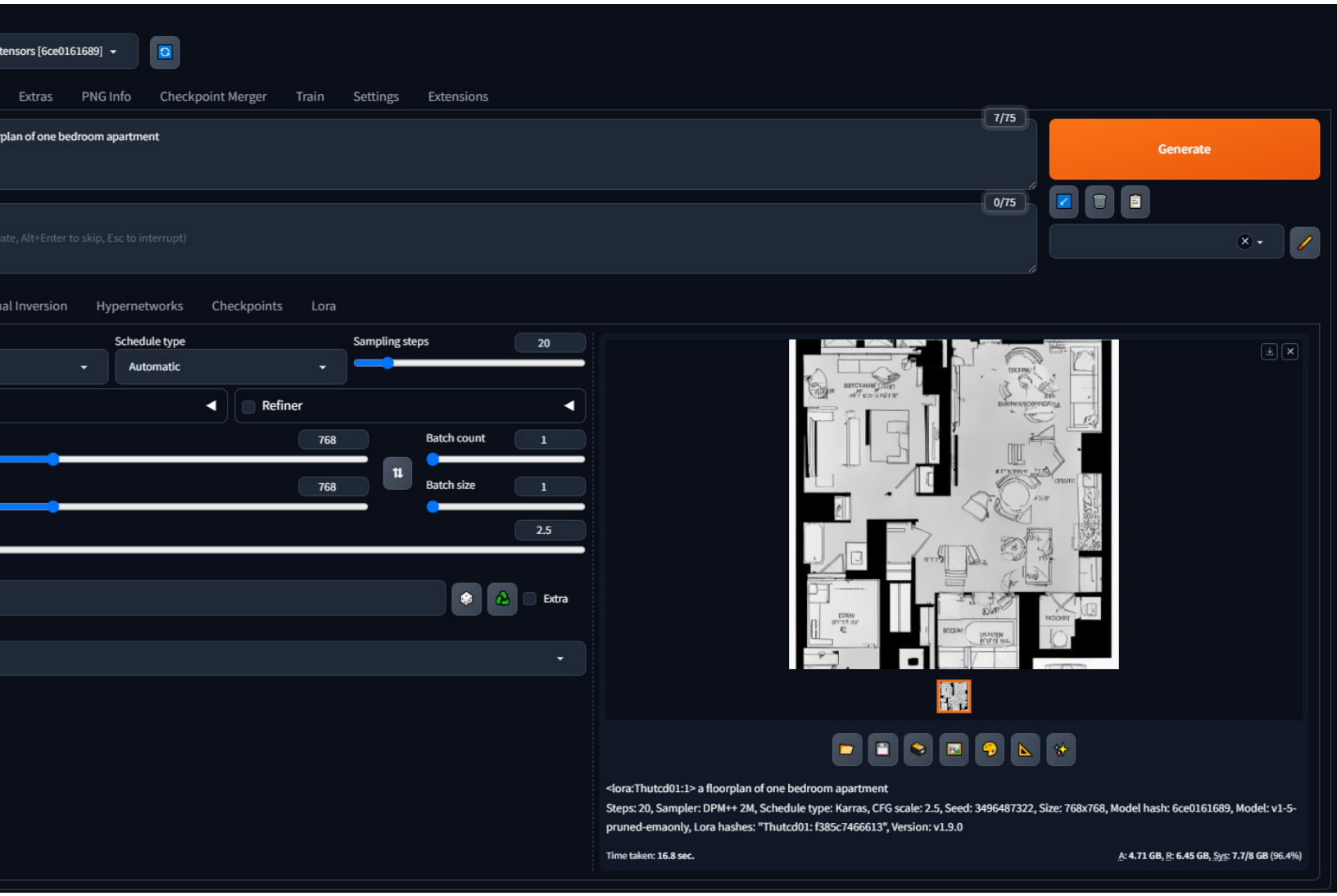
the labelled dataset had to reflect the reality of the floorplans as individuals were experiencing them. With the same floorplan images taken from thutcd01, the labels were then revised to explicitly mention a more lived experience in each individual unit, with the general structure of the labels as were relevant to the unit as follows:

> "A floorplan of a [small] dwelling for [one/two/three/one to two] person/people"
>
> "[Very] tight fit for [three people/four people]"
>
> "No bedrooms", "Small [bedroom/kitchen/balcony]", "Little storage space", "Awkward plan"
>
> "Unproper suggestion for den" if the den has no windows and shows suggestion for bed, against OBC
>
> "Unafforadable"
>
> "X sqft", if this number is precise then I include another prompt of the number rounded to the nearest hundred.
>
> "[North/South/East/West] View"
>
> "[Name of condo]"

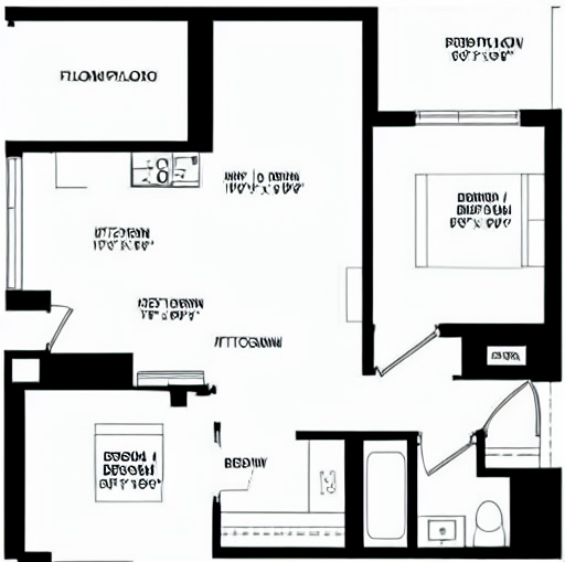
The intention of this LoRA, labelled "thutcd02" was to use as an analytical base for floorplan generation based off more social factors, one that "thutcd01" was not able to directly invoke due to the lack of social terminology used within the trained set. Moving forward, thutcd01 was used when the generated image wanted to be a more objective, developer focused organizational tool, and thutcd02 was used when the human condition wanted to be addressed within the generated prompts.

Once that LoRA was trained, the next goal was to push the AI to see what type of generations it could output depending on the given prompts. As previously stated, including the 'floorplan' prompt would yield results that would more closely align to the inputted floorplan data, likely due to every label including the word. Iterations were done to see exactly what logic the AI was drawing on.





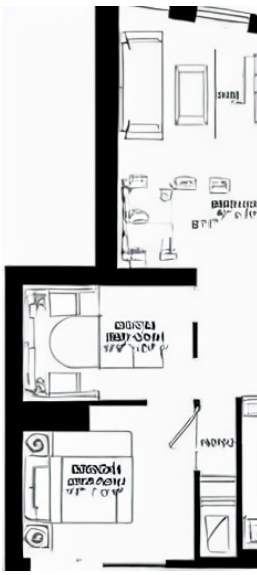
5.6. A screenshot of Automatic1111, the Stable Diffusion WebUI. Within the screenshot, an image was generated with the Thutcd01 LoRA applied with the prompt "a floorplan of one bedroom apartment," the prompt from Figure 5.4.



a. Prompt: floorplan <lora:Thutcd01:1>



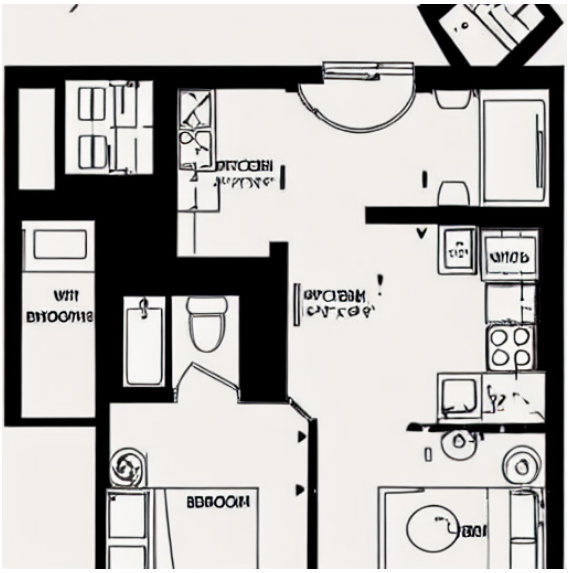
b. Prompt: a floorplan of a three bedroom apartment for 10 people <lora:Thutcd01:1>



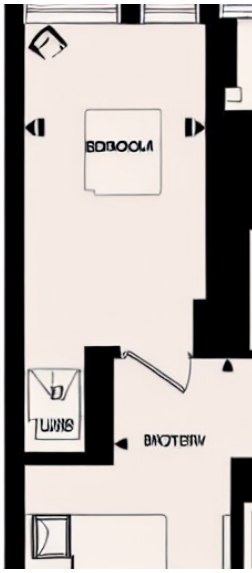
c. Prompt: a floorplan of a three
live in <lora:Thutcd01:1>



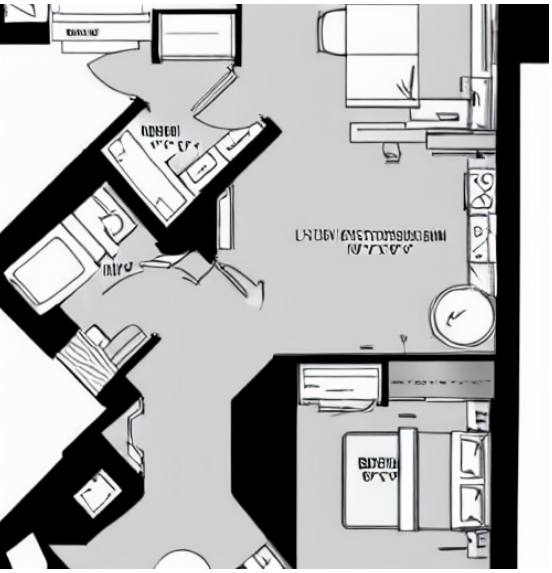
f. Prompt: Floorplan <lora:Thutcd02:1>



g. Prompt: <lora:thutcd02:1> a floorplan of a one-bedroom apartment for 10 people



h. Prompt: <lora:thutcd02:1>
for 20 people to live in



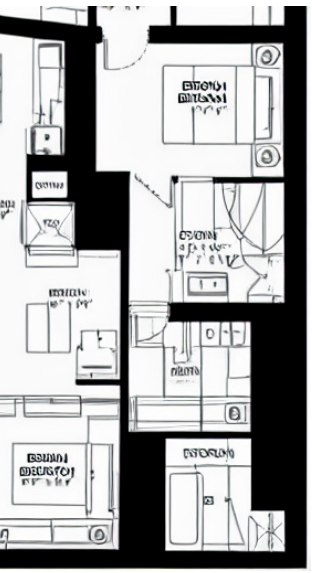
k. Prompt: Floorplan <lora:Thutcd02:1>



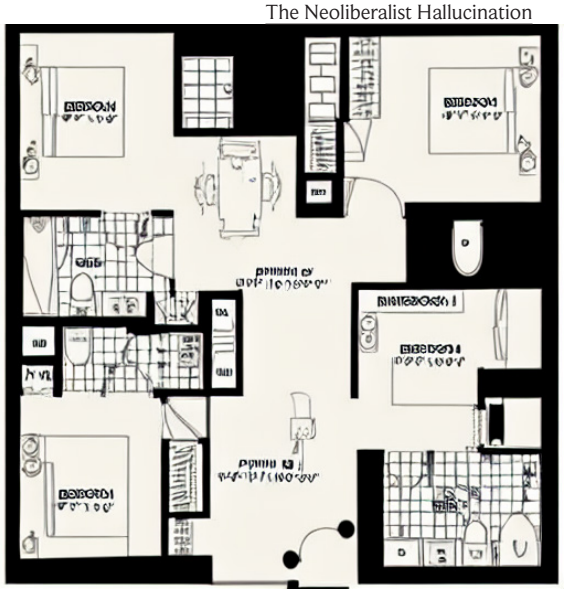
l. Prompt: a circular floorplan <lora:Thutcd01:1>



m. Prompt:



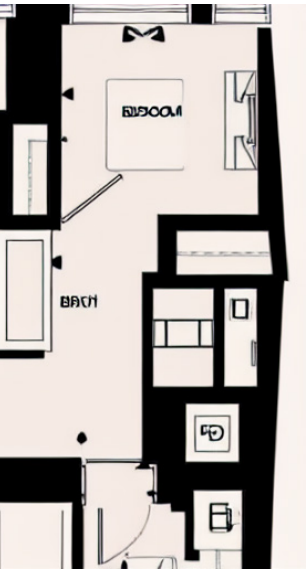
bedroom apartment for 20 people in to



d. Prompt: a floorplan of a three bedroom apartment for 50 people in to live in <lora:Thutcd01:1>



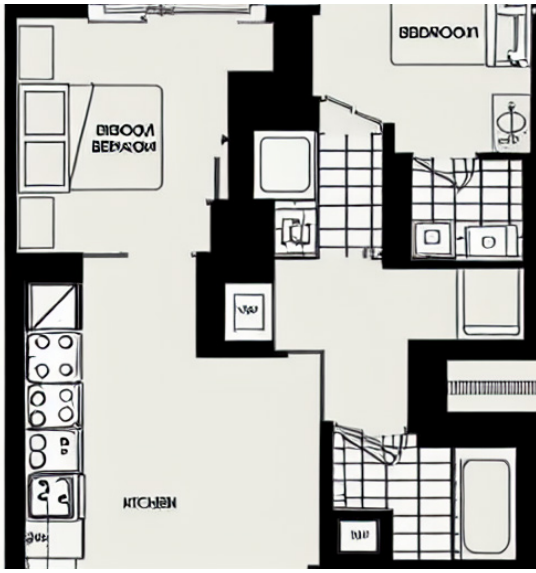
e. Prompt: a floorplan of a three bedroom apartment for 50 people in to live in, 50 people in plan, 50 people living <lora:Thutcd01:1>



a floorplan of a one-bedroom apartment



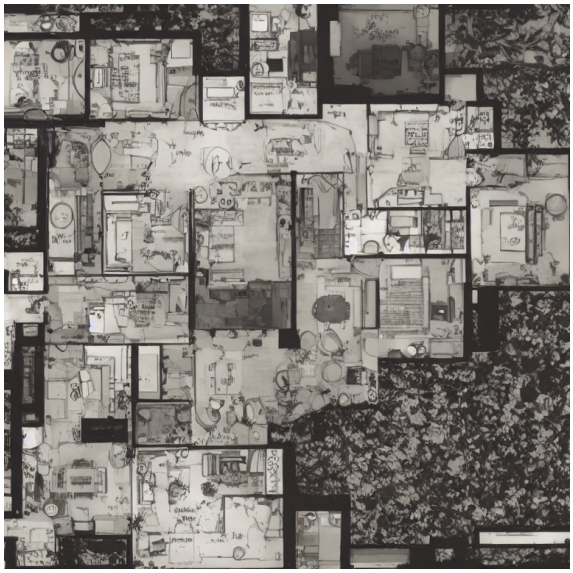
i. Prompt: <lora:thutcd02:1> a floorplan of a one-bedroom apartment for 50 people to live in



j. Prompt: a floorplan of a three bedroom apartment for 50 people in to live in, 50 people in plan, 50 people living <lora:Thutcd02:1>



a circular floorplan <lora:Thutcd01:1>



n. Prompt: a circular floorplan <lora:Thutcd01:1>



o. Prompt: a circular floorplan <lora:Thutcd01:1>



5.7. AI generated image. Prompt: "<lora:thutcd02:1> A floorplan of a three bedroom apartment"



5.8. AI generated image. Prompt: "<lora:thutcd02:1> a floorplan of an accessible two bedroom apartment for a pair of recent immigrants trying to get a foothold in the country"



Rooms: Generative Results

If generative AI is the architect within this city, the role I fulfill is the general contractor of this paper architectural project. Broadly speaking, when working with genAI, an iterative process of prompt creation testing occurs to produce a polished output. However, it was especially important here that I follow the outputs as they presented themselves, and only iterate prompts for communicative clarity, and not image refinement.

Because of my role, the outputs of the plans as a result were not always clear, with the depictions of furniture and appliances being seemingly implied but not accurately represented. However, when analyzing these plans, certain patterns began to emerge, indicating clearly AI's design attempts within a limited output. In single generations, it was difficult to understand the logic of what the AI was generating, however in aggregate patterns began to form.

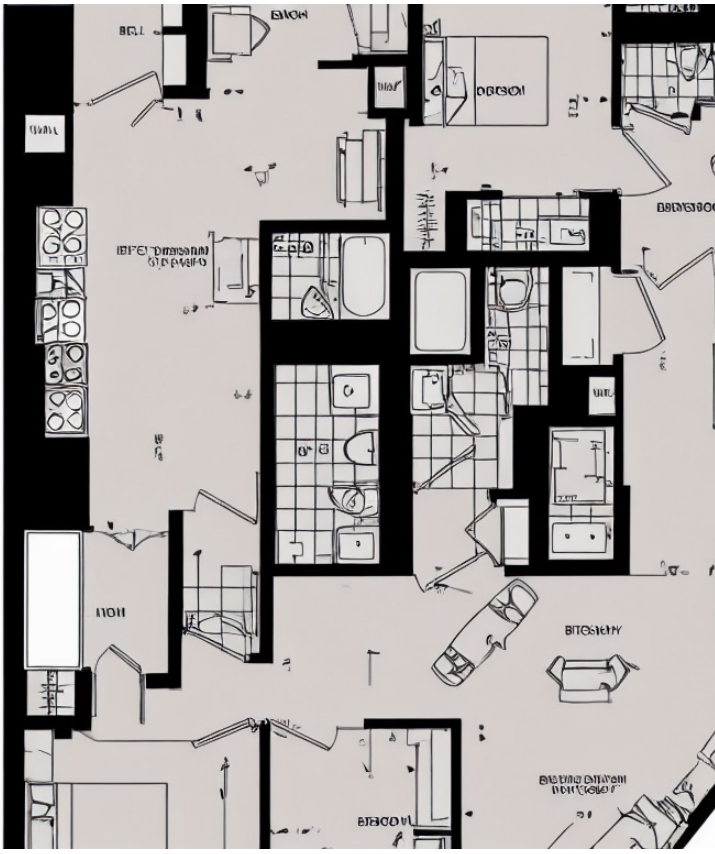
AI knows room typologies.

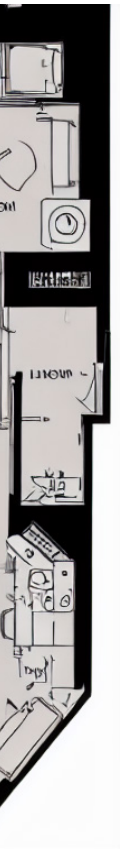
Bathroom appliances seem to always be depicted with a hatched pattern, likely due to the input condo plans always tiling their bathrooms in plan. Furniture, mostly, was placed in the correct rooms, which was the biggest predictor of what it intended the space to be. ChatGPT, when given an image of the floor plans to analyze, seemed to agree with my analysis, seeing further and showcasing the displayed text jumbles within the generations accurately, as a "Bathroom" or "BEDRM" (page 139).

5.9. AI generated image. Prompt: "<lora:thutcd02:1> A floorplan of a one bedroom apartment, three families that don't know each other but need to live in the same space"



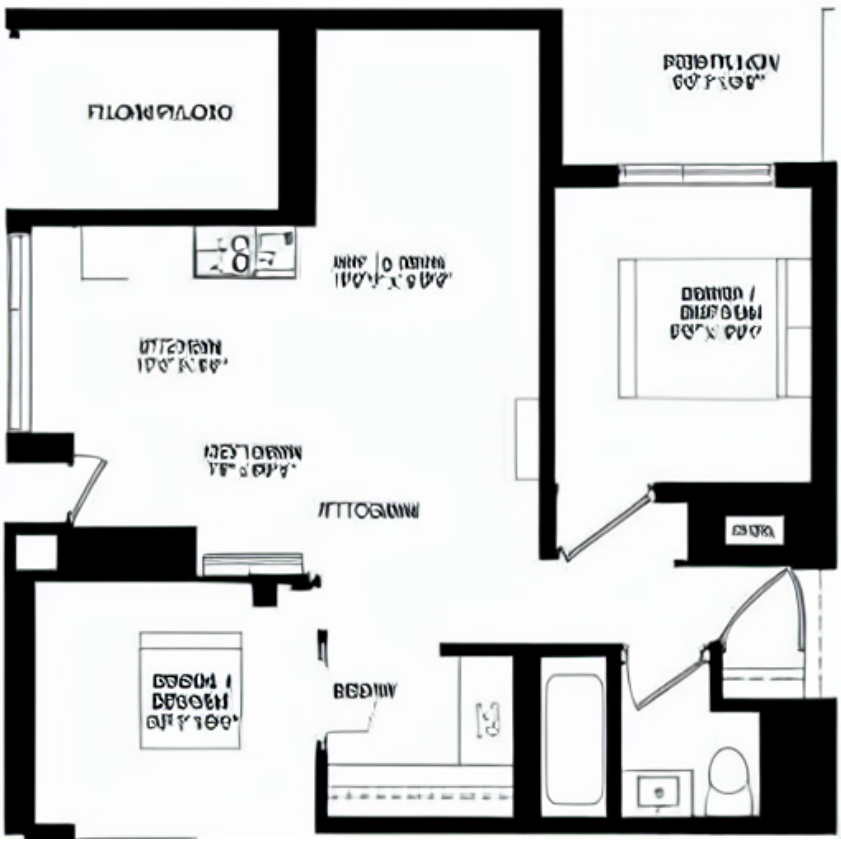
5.10. AI generated image. Prompt: "<lora:thutcd02:1> A floorplan of a one bedroom apartment for low income of two people with no children"





AI knows about distinctions of space.

The spatial logic of the generations was questionable, but it seemed to accurately not conflate rooms together: ie, bedrooms were often separated in programming, as well as bathrooms, but kitchen and dining, two programs that are often mixed in real condominiums, were much more varied in whether they would be together in generated in plans or not. It also seems to generally address service areas, with perhaps not as clear of a logic rooms, but would always group them and place them in generally correct areas. Outdoor space was a rare generation, but when it did, it would be evident that an attempt at a sliding door would be drawing, and the line for the exterior balcony rail would be thinner than the rest.



5.11. AI generated image. Prompt: “floorplan <lora:Thutcd01:1>”



5.12. AI generated image. Prompt: “a floorplan of a three bedroom apartment for 50 people in to live in, 50 people in plan, 50 people living <lora:Thutcd01:1>”

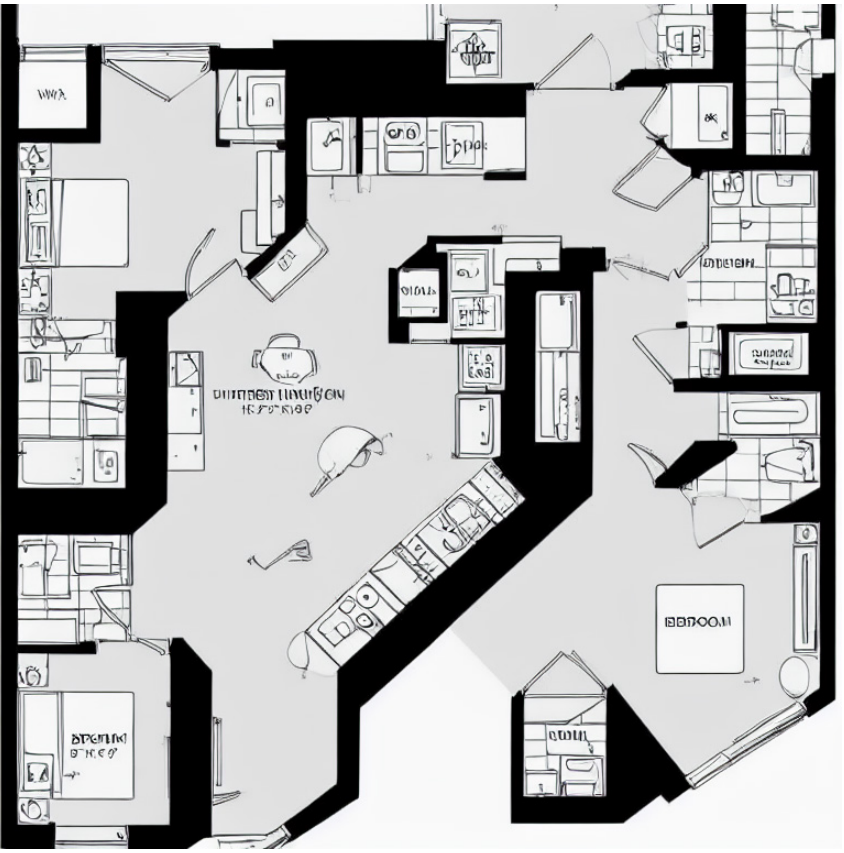


AI knows how people live.

A couple of generations were done in an attempt to see how it would depict multiple occupants within one room. The first generation prompted “A one-bedroom apartment for 10 people.” This on its own was difficult to understand. However, the prompt was exaggerated on the subsequent generation, with “A one-bedroom apartment for 10 people.” It didn’t seem like there was much of a structural difference for 10 people, however when including a third generation, “A one-bedroom apartment for 50 people,” a couple of patterns began to emerge: first, the floorplans became increasingly segmented, particularly with bathrooms though not necessarily with bedrooms, and second, an increase in circular objects began appearing in the plan—ones that the input data likely were nightstands or tables, but it seemed like the AI was wanting to depict the plan view of humans, by including them within plan. The amenities within the space also seem to accommodate the amount of people that lives within them: with more people specified in a prompt predictably increases of amount of bathrooms (likely drawing from the larger apartment models), but also, often, an increase of kitchen amenities, which doesn’t naturally occur in apartment typologies.



5.13. AI generated image. Prompt: "<lora:thutcd02:1>A floorplan of a one bedroom apartment for low income of two people with no children"

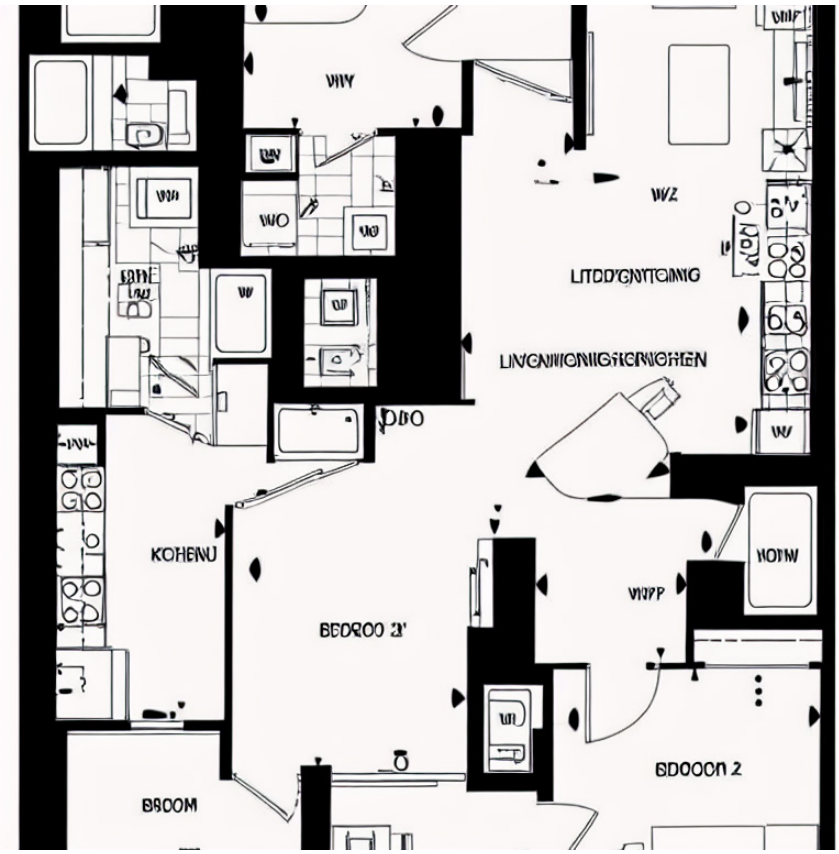


5.14. AI generated image. Prompt: "<lora:thutcd02:1> a floorplan of an accessible two bedroom apartment for a pair of recent immigrants trying to get a foothold in the country"

AI knows that neoliberalism wastes space.

In the case of the generated floor plans, it was interesting to see when a plan would be enclosed within the bounds of the square generation, and when it would leave the edge of the image open, as if the floorplan continued beyond the boundary of the image. Generally, within the floorplan established less occupants, it had a tendency to enclose the floorplans. However, when the occupancy of a space is increased within the prompt, the generations would subsequently have more free edges.

Within the plans themselves, there seems to consistently be leftover, interstitial space, that doesn't necessarily adhere to any particular room typology. Within these spaces, weird windy corridors, walls partitioning spaces, or just spaces that lead to nowhere would be drawn. All perhaps artifacts of generative AI, but I can also see it the direct correlation within these leftover spaces and plans of which the LoRA data was derived from.



5.16. AI generated image. Prompt: "<lora:thutcd02:1> a floorplan of a small space for 50 people in to live in"

5.15. AI generated image. Prompt: "<lora:thutcd02:1> a floorplan of a one-bedroom apartment for 20 people to live in"

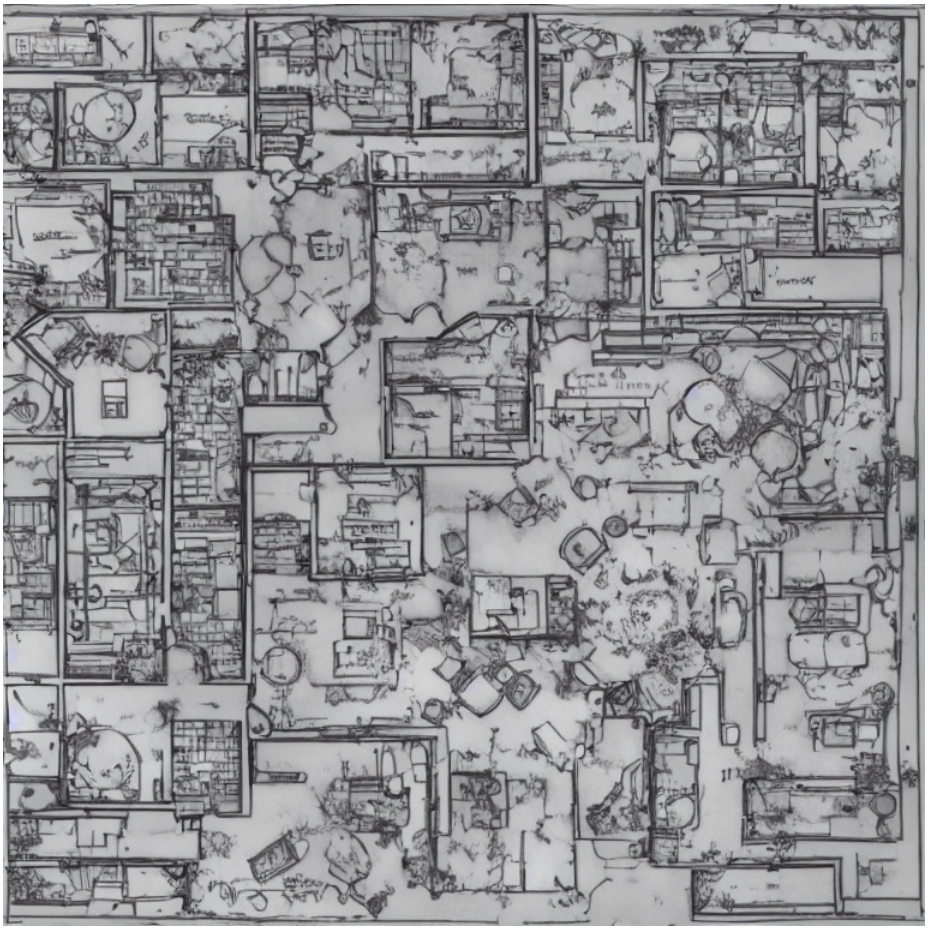


AI doesn't know thresholds.

At least not too well. It seems to suffer with door openings, or openings in general, both in an attempt to depict door frames and swings, and actual openings to move through the plan. In the analysis of these floorplans, I would sometimes have to make the inference of which lines drawn were door swings, of where a thin wall with some drawn artifacts were intended to be a non-loadbearing openings into specific rooms.



prompt: <lora:Thutcd01:1> a circular floorplan



5.17. AI generated image. Prompt: "<lora:Thutcd01:1> a circular floorplan"

Rooms: The Masterplan

After this exercise, I experimented with adjusting other properties to see how the generations would adjust their output. In particular, the CFG scale—"classifier-free guidance" scale, referred to as simply the "guidance scale"—is a property that could be adjusted that allows you to decide how closely the generation needs to follow your prompt as its generating the image. With a Guidance of 1, your generated output will likely be referencing other data that is more tangentially related to your initial prompt, resulting in a less controlled and more unexpected output, and a Guidance of 30 results in a more predictable and structured result as compared to your prompt. Guidance scales are useful in controlling your input in an outcome: if you have a very specific prompt that you want the AI to produce faithfully, the guidance scale can help ensure that the output doesn't include decisions that are different than that of which you specified in the prompt, but it can also be useful in allowing the AI for more freedom in outcome when your prompt is more vague and you don't have a specific vision for the outcome.

Increasing the Guidance scale in the condo generations did not result in much of a change from the default generations (with the default guidance scale being 7) but something interesting occurred when I decreased the scale to allow more freedom in the generations. This was discovered when the prompt of a "circular floor plan" was being tested to see whether the LoRA would understand how to make curved walls despite it input data lacking any curves. When the Guidance scale was turned down to 1 to accommodate the flexibility, no curved walls were produced, however a sketchy depiction of an aggregated, messy floorplan was produced. The results of this image were interesting, as it seemed that in lowering the guidance would allow for a more loose, flowing plan that depicted multiple rooms in aggregate.

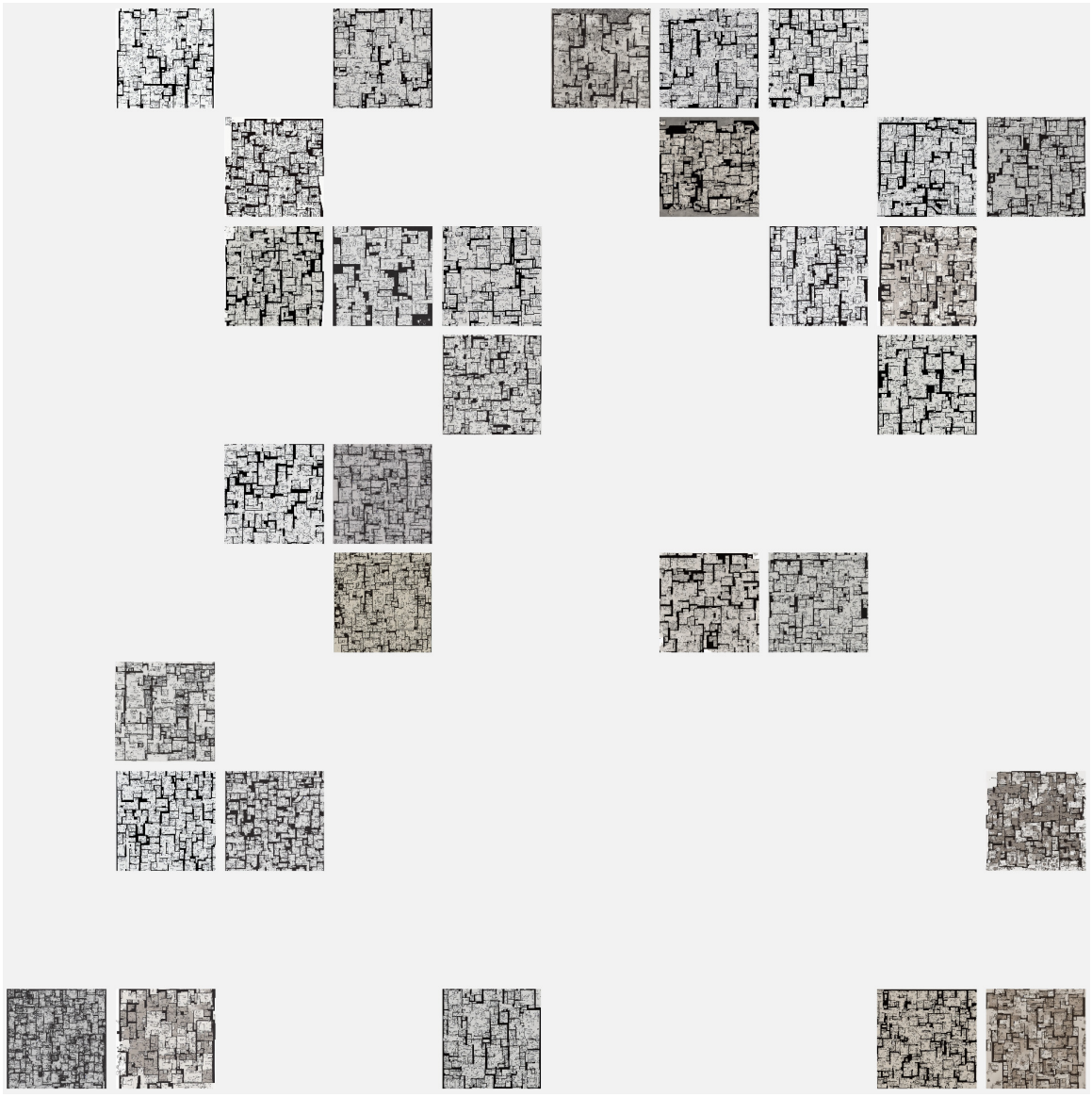
prompt: <lora:Thutcd01:1> a floorplan of countless rooms to house families.



5.18. 100 AI generations, using the prompt of "a floorplan of countless rooms to house families."

The identity for the neoliberalist utopia was strongly present in this iteration, and so I decided to explore what further could be done with this output.

Continuing to further explore several prompts, I was looking for the outcome of the generations themselves, as well an informative social suggestion for how the Neoliberalist Proxy would interpret to design the utopia. After a several iterations, the prompt of "a floorplan of countless rooms to house families" with a guidance factor of 1.5 was decided on. This prompt seemed to output this desired labyrinthian floorplan while remaining more structured, and addressing how these generated rooms would be used to see if the DNA of the prompt would persist through these generations. One hundred generations were then generated, with the goal of finding groupings of outputs that could work successfully in a visual depiction of the utopia.



5.19. Selected generations from Figure 5.6 for final design for utopian City of Rooms.

I subsequently chose thirty, primarily for their clairity and the opportuntiy to be able to collage them together to form a massive, endless floorplan, especially in with a lot of generations not having a walled border around the produced image, a careful curation of legible outputs and ones that would work in juxtaposition was then the basis for the City of Rooms.

Social Dimension: ChatGPT

Explored further in the upcoming section, a limitation of using text-to-image generative AI is the lack articulation of what is being seen. Therefore, the role that the LoRA generations occupy within the context of this thesis is the pure spatial exploration of the utopia.

ChatGPT by OpenAI is a Large Language Model that allows you to have a conversation with it. Unlike Stable Diffusion, its primary output is text, with its priority being to simulate natural conversation when answering questions. With a recent update, the user can now upload images for it to 'look' at and interpret, influencing the output of its prompt. In order to get further clarity in the social dimension of the neoliberalist utopia, I decided to incorporate ChatGPT 4o as the neoliberalist consultant for the generations. It was important before starting any conversations, that I explicitly frame the goals of the neoliberal utopia and the expectations of the role to 'fine-tune'[13] the outputs closer to the project at hand.

By incorporating this model, I could ask it more specific questions, help interpret Stable Diffusion's outputs, and allow the Neoliberalist proxy to have suggestions in how people live in the City of Rooms.

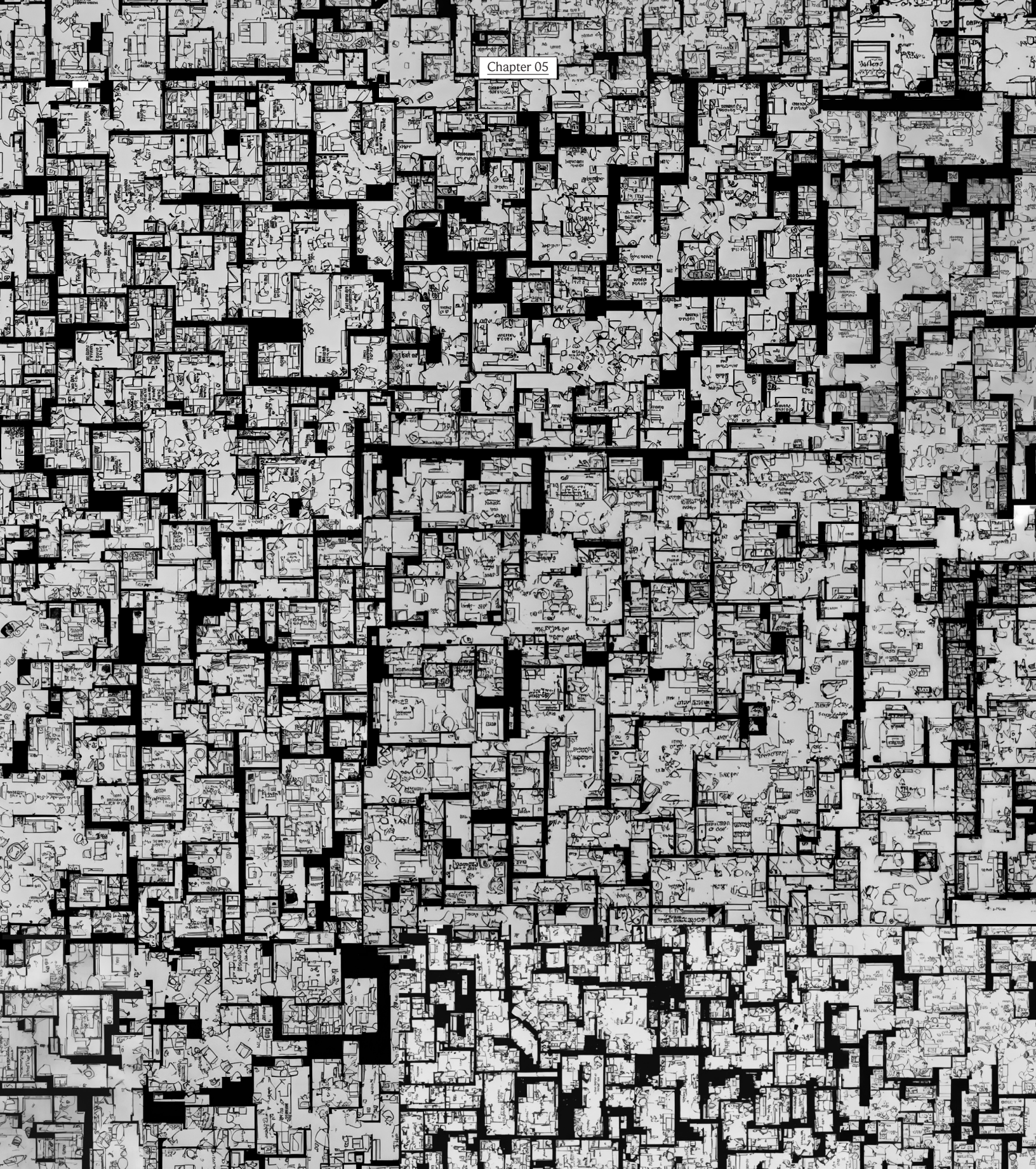
13 While fine-tuning GPT-4 is possible, the amount of time to achieve proper fine-tuning would not be equivalent to an optimal output for this thesis. As an alternative, one ChatGPT conversation "thread" was used in order to accomplish results, as it 'updated its memory' when presented with new information. This way, I was able to 'fine-tune' it in the most rudimentary way, not through GPU training, but by teaching the model the goals and outcomes of the outputs.

THE CITY OF ROOMS

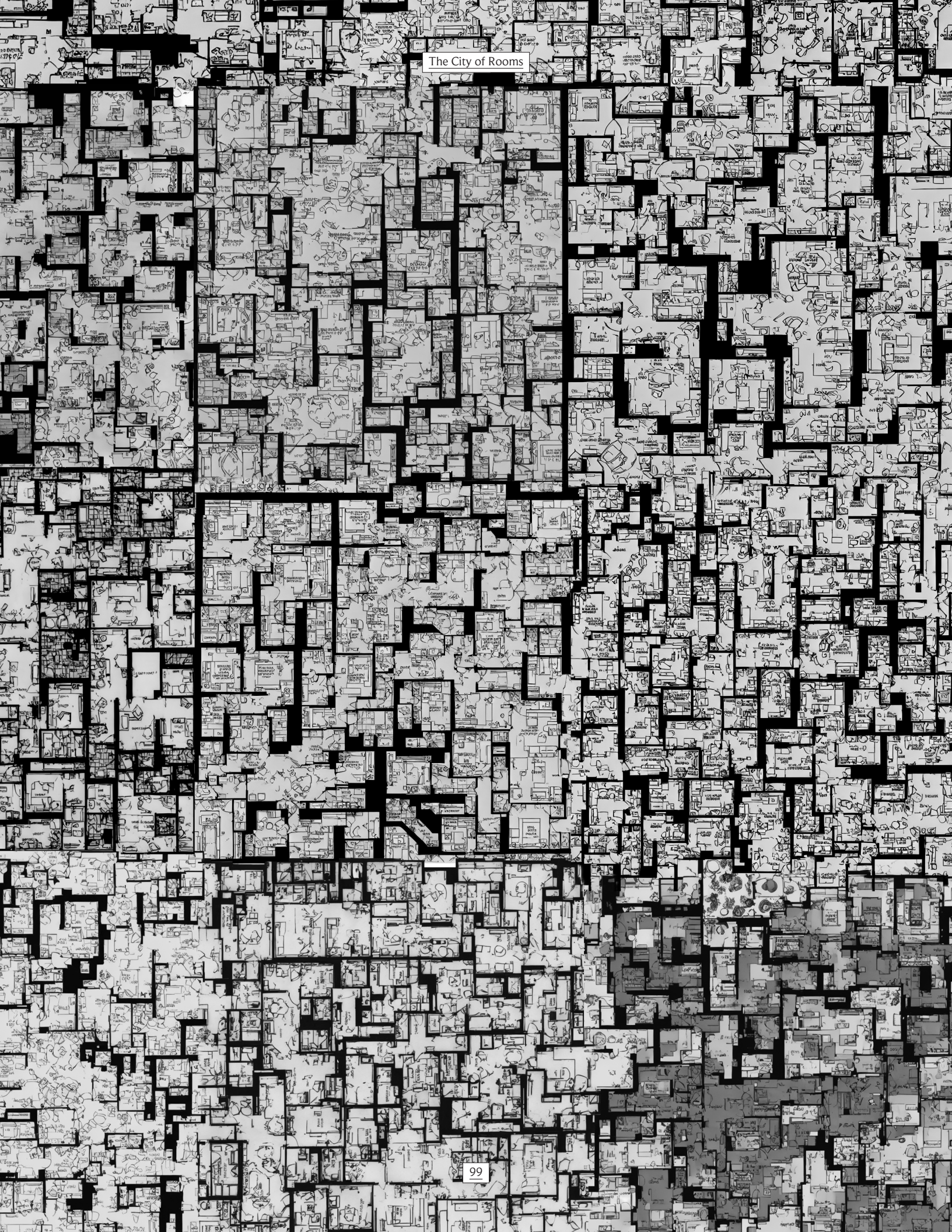
What follows is the neoliberal hallucination. Endless rooms, and endless cores, minimum living yet interconnected. In this self-perpetuating vision, I visualize what a neoliberal utopia really is.

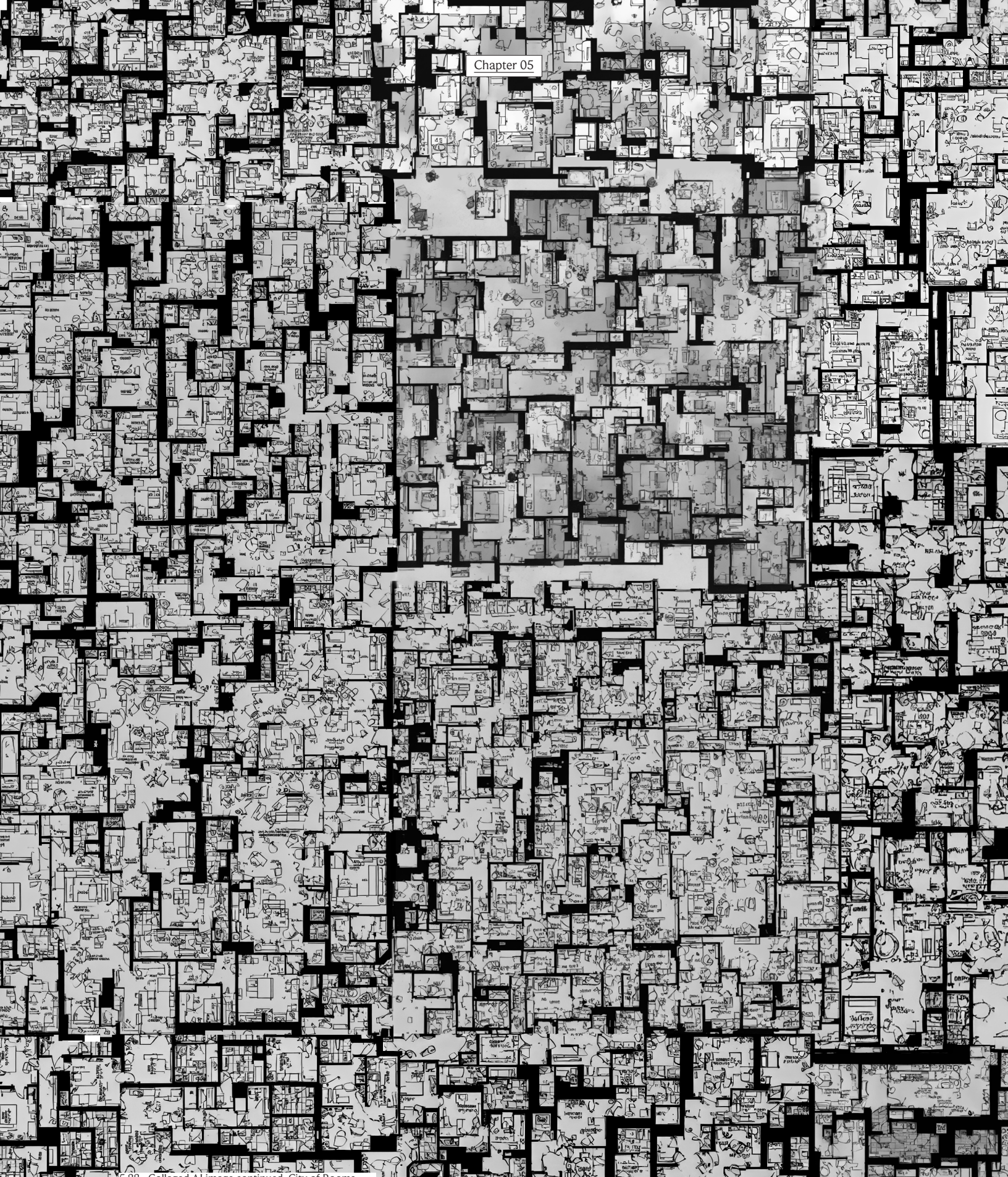
This negative utopia is composed of an endless sea of rooms, casting over the city of Toronto, comprising of a formless mass as it consumes the city. Hierarchy becomes established through architectural imposition, as developers continue to generate for the ever growing city population, dividing the spaces further to accommodate more clients, but to keep the shareholders content. While different programs of rooms exist, this utopia explores how neoliberalism proposes their arrangement in various ways and adjacencies given different living scenarios. This all starts with the masterplan, a depiction of the city in plan.

In order to explore how neoliberalism would design this City of Rooms, there are two actions that are taken concurrently; the development of the design, through AI, and the analytical action, through my own execution. AI is used wherever possible, showcasing neoliberal choices for the proposed city. However, I use drawing as a tool of analysis, to decipher some of the language hidden behind AI generations and understand it from an explicitly architectural perspective. At the root of all drawings done by myself is a decision made by AI. Conversations with ChatGPT, consultations with the descriptive and prescriptive generative images, using AI to edit drawings were all ways AI had been incorporated into the drawing process—to follow through with the fingerprint of neoliberalism even when drawing.

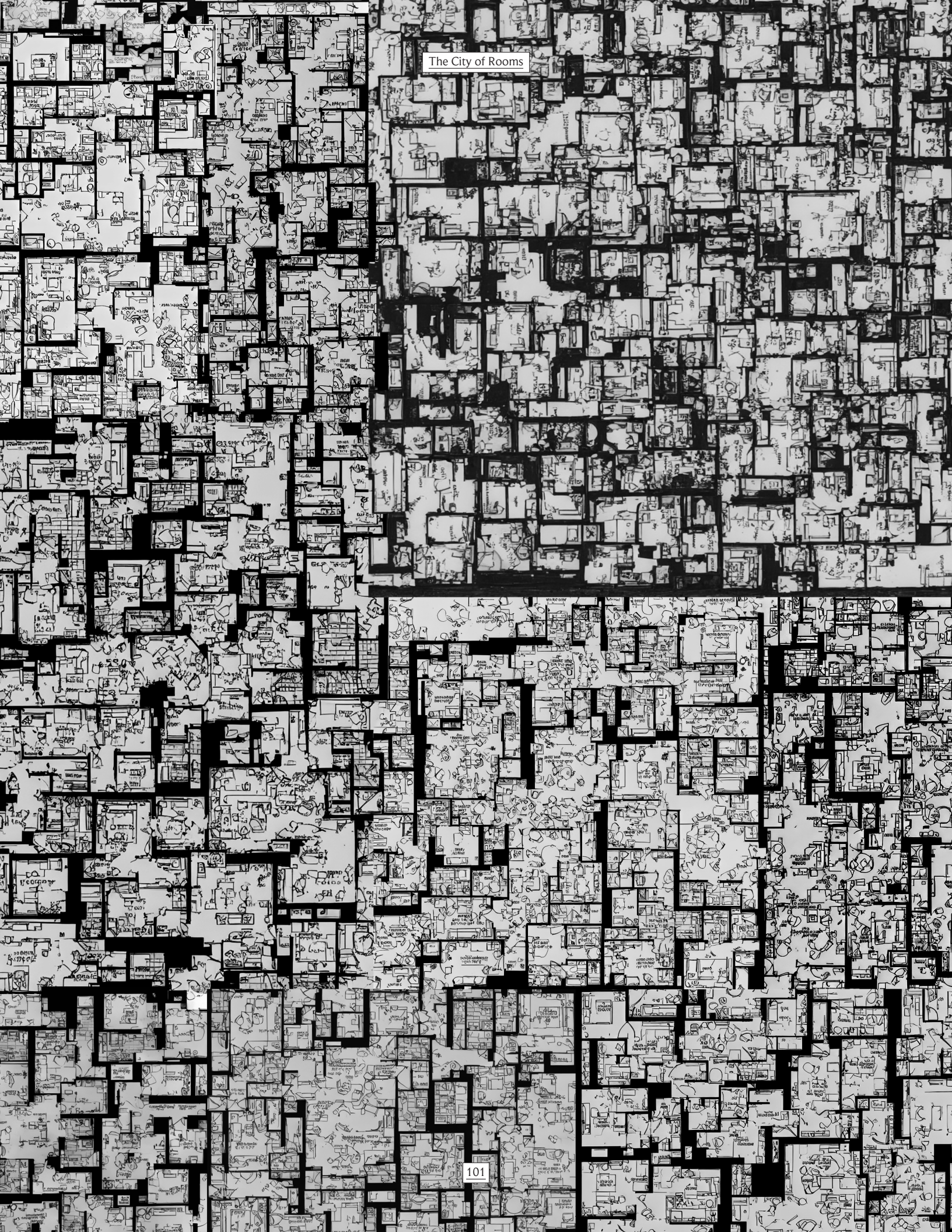


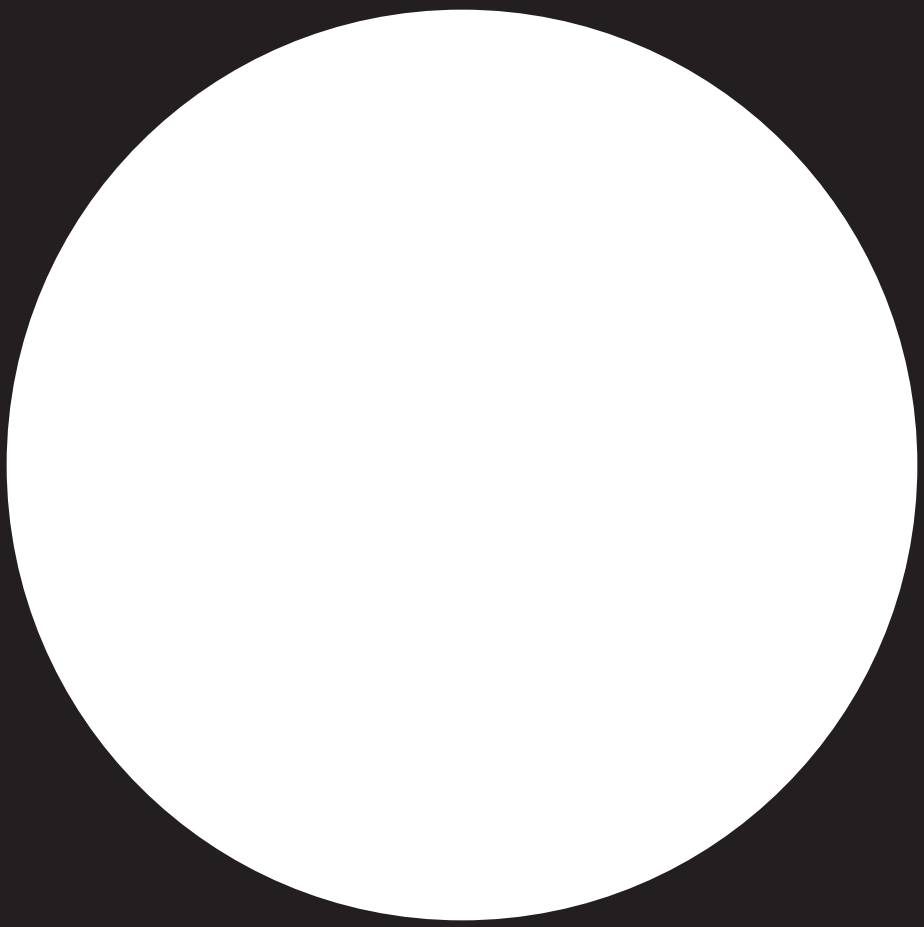
5.20. Final output of collaged AI generations from figures 5.18—5.19, referred to as the "Masterplan." This image represents the base of the City of Rooms, and its vast endless rooms within the utopia.



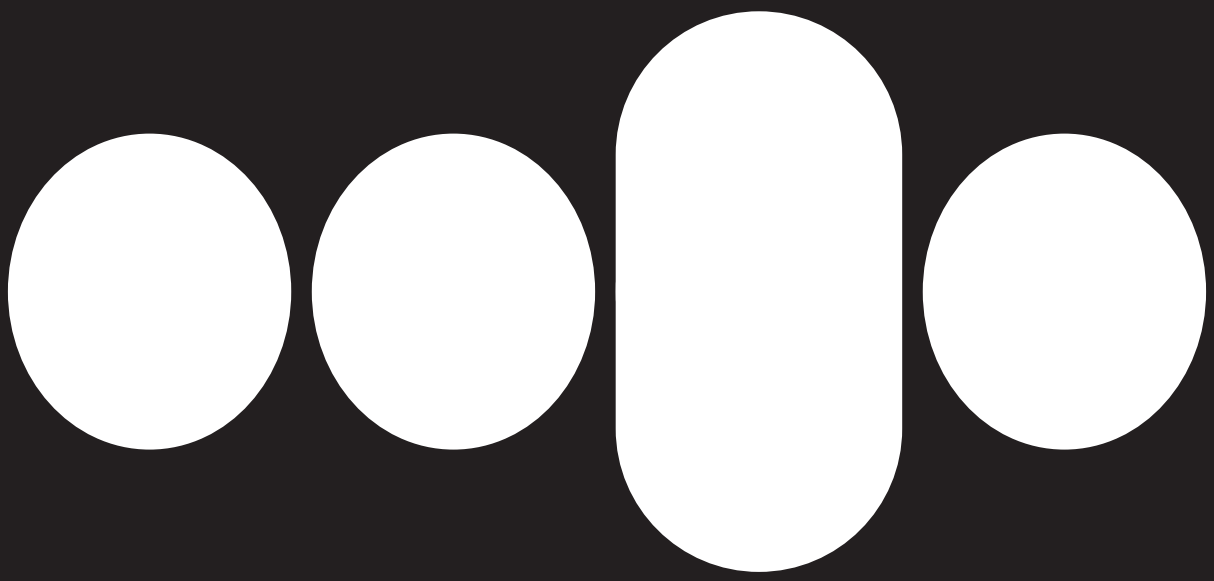


5.22. Collaged AI image continued, City of Rooms.





m2kaczma: *Imagine that you, as an AI, are behaving as my proxy to neoliberalism, and we are creating a neoliberalist utopia. This utopia is called the 'city of rooms'. The reason you are behaving as a proxy is because both you and neoliberalism share an iterative nature, developing on its own until perfect optimization is reached, regardless of the experience of the individual. What you are seeing is a plan of this utopia, where all rooms are optimized to the smallest capacity of the individual with the most optimal layout. This is AI generated, using a LORA of existing condominium plans and then prompted with "A floor plan of countless rooms to house families." What I'm describing is a negative utopia, one that is critical of sociopolitical developments of the 2020s, particularly in Canada, but remains within the speculative realm. I need you, the neoliberalist proxy, to tell me general trends in the building of this project, with how you see levels as this mass of rooms aggregates being inhabited by people, considering social class, familial relationships, inhabitation, and how society thrives. This thought experiment is coming from the discipline of architecture, so I'm interested in how this society lives in an architectural perspective. I am inspired by the works of Superstudio, Archizoom, Archigram, the Metabolists, Cedric Price, and general architectural utopianists.*



ChatGPT 4o: To represent the changes in the "City of Rooms," each height level would represent a different stage in the city's development, showing how its spatial organization reflects and enforces the evolving social order, the shifts in architectural design, and the political ramifications of such a densely packed utopia.

Subterranean Level (ZONE -1)

A network of service tunnels, maintenance rooms, and mechanical systems—the unseen infrastructure that supports the life above. Sparse, functional, and utilitarian, with little regard for comfort or aesthetics. These levels are populated by the invisible workforce, physically and socially hidden from the rest of society, their labor essential but unacknowledged. Industrial architecture dominates, with exposed pipes, wiring, and machinery. Spaces are cramped, with low ceilings and harsh lighting. It is a space of pure utility, where the human experience is subordinate to function.

Ground Level (ZONE 0)

This level contains a dense and monotonous grid of identical small rooms with narrow corridors. The rooms are minimally furnished, designed for maximum occupancy with minimum comfort. The ground level serves the lowest economic classes or transient populations—the most precarious and the most regulated. Functional spaces like shared bathrooms or kitchens are positioned at regular intervals, enforcing communal use but without fostering real community. Heavy surveillance and policing are evident, with cameras and checkpoints controlling access and movement.

Middle Levels (ZONE 1)

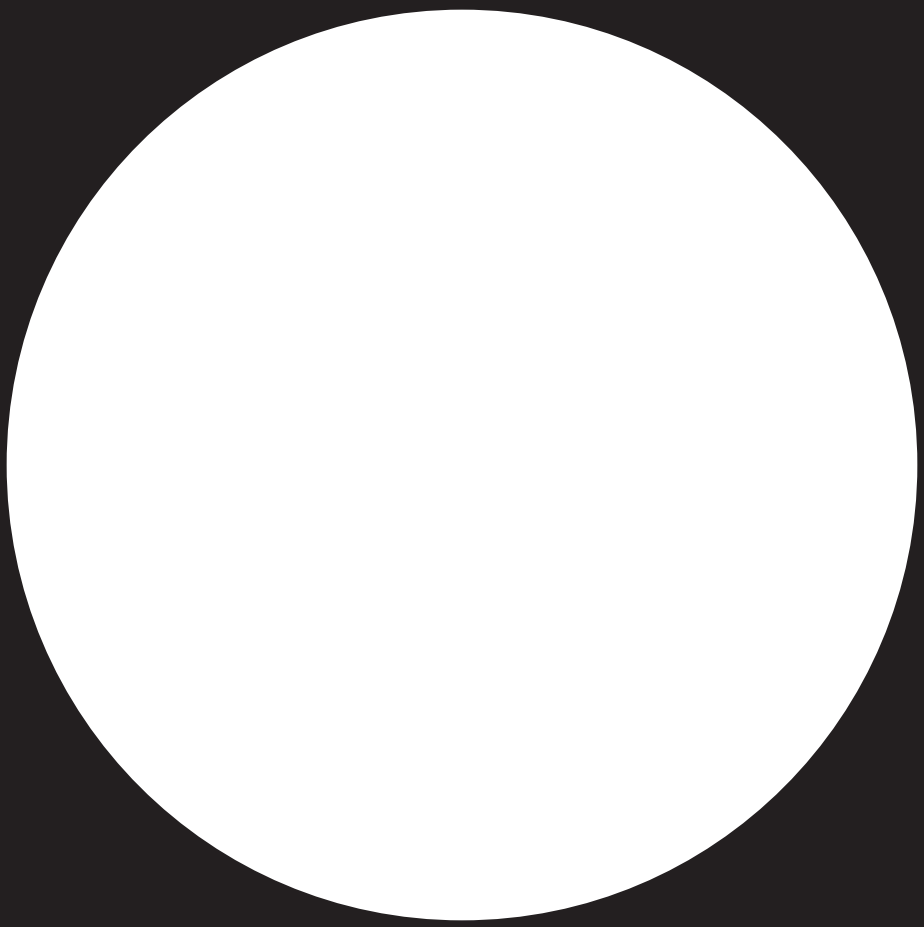
Rooms become slightly larger, and the floorplan introduces some variability—a mix of single, double, and small family units. Circulation spaces widen a little, and small courtyards or light wells are introduced to provide a semblance of outdoor space. While still highly regulated, there is a hint of social stratification, with different types of rooms assigned based on occupational roles or status. The materials change slightly—lighter colors, more glass, and small balconies start to appear. Spaces are more flexible, with movable walls or modular furniture systems allowing for a dynamic use of space, reflecting the neoliberal emphasis on flexibility and adaptability. Regulation is still present, but in a less overt form. Access to amenities is tiered, depending on one's economic contribution or social standing.

Upper Levels (ZONE 2)

The floorplans begin to more significant variation, with larger and more luxurious rooms. These levels are characterized by abundant natural light, large windows, terraces, and private gardens. These levels offer more privacy, comfort, and access to amenities, reflecting a stark divide between the privileged and the lower levels. The design is more open and spacious, with high ceilings, expansive windows, and an emphasis on views and aesthetics. The layout is less rigid, with more organic forms and open-plan spaces.

The Roof Level (ZONE 3)

A stark contrast to the levels below, the roof level is a vast open space. This is the space of the city's ultimate decision-makers—those who shape policy, economy, and society itself. Minimalist, highly aestheticized spaces dominate, with extensive use of glass and open-air elements, blurring the line between inside and outside. This level is almost utopian in its design—an artificial paradise above a mass of densely packed rooms. It represents the ultimate neoliberal aspiration: maximum autonomy for a privileged few, supported by the tightly controlled lives of the many below.



m2kaczma: *Visusalize this for me.*



5.23. ChatGPT (AI) generated sectional perspective of the project as part of the conversation depicted. Generated with DALL-E within ChatGPT.

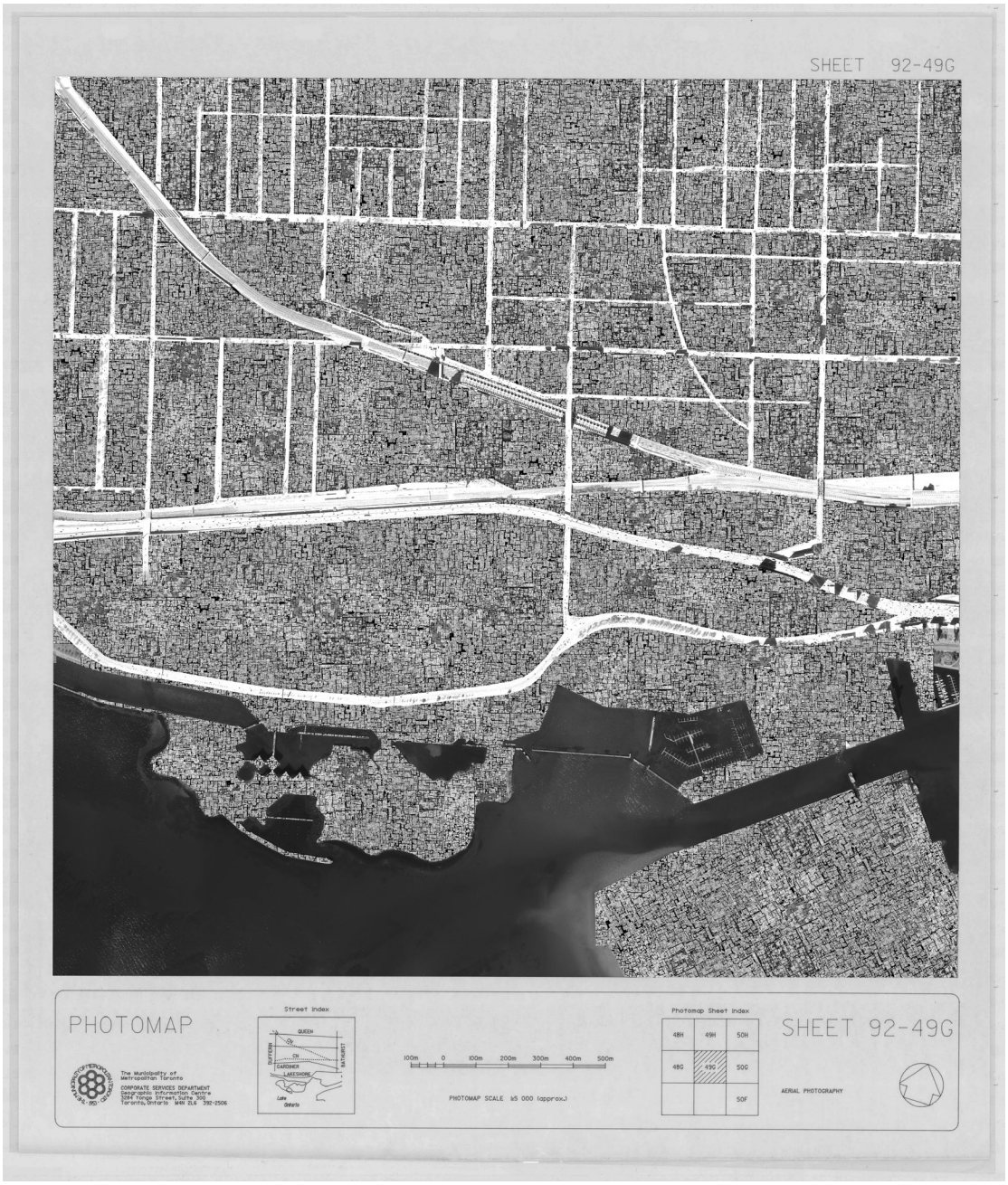


SITE

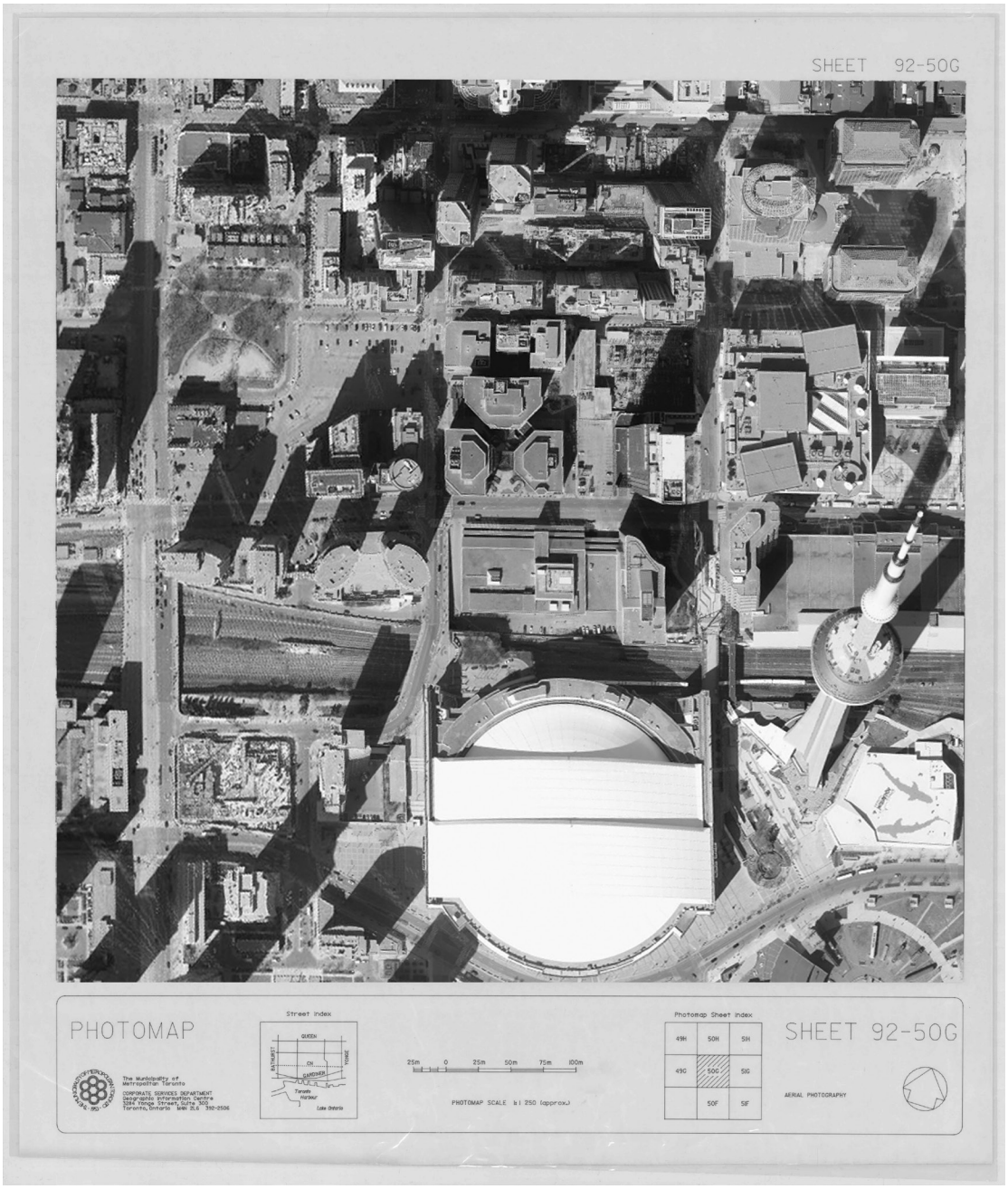
Located in the city of Toronto, these set of drawings gives insight in the context of site. As the original masterplan was an aggregate of multiple Stable Diffusion generations, each generation out of the one hundred produced did not enclose themselves within the output of the image, as if insinuating that the image continues beyond the bounds of the outputted size. As a result, an inference can be made that this plan runs endlessly, as a self-generative force. Like neoliberalism, the plan is only allowed to continue due to the nature of demand of property within the city, iterating upon itself and washing over the city.



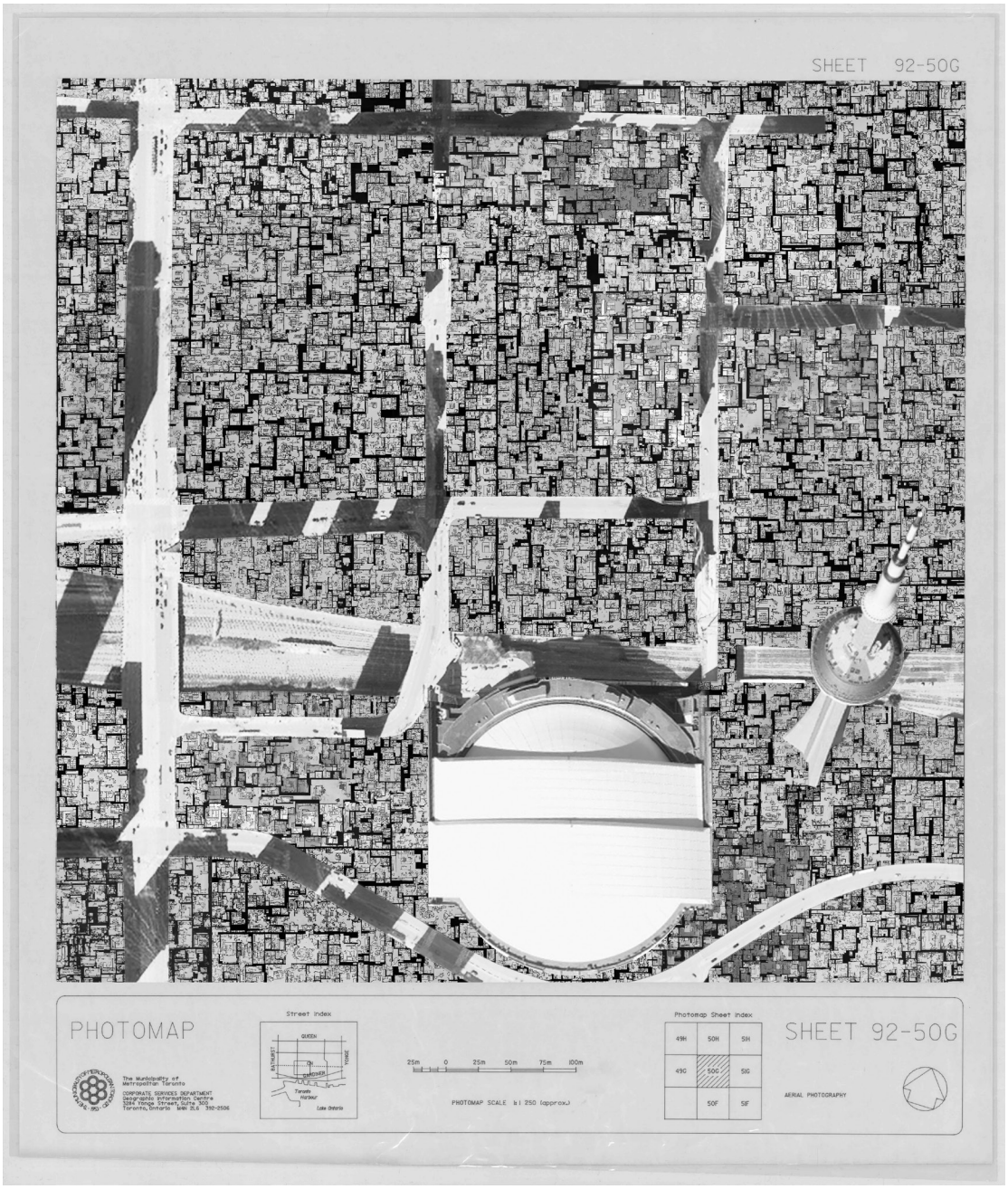
5.24. Aerial perspective of Toronto, depicting the west-end of the city including Billy Bishop airport and the now defunct Ontario place. Aerial taken in 2023, courtesy of Google Earth, subsequently collaged by author. Frame collaged from aerial photograph of Toronto in 1992, courtesy of city of Toronto.



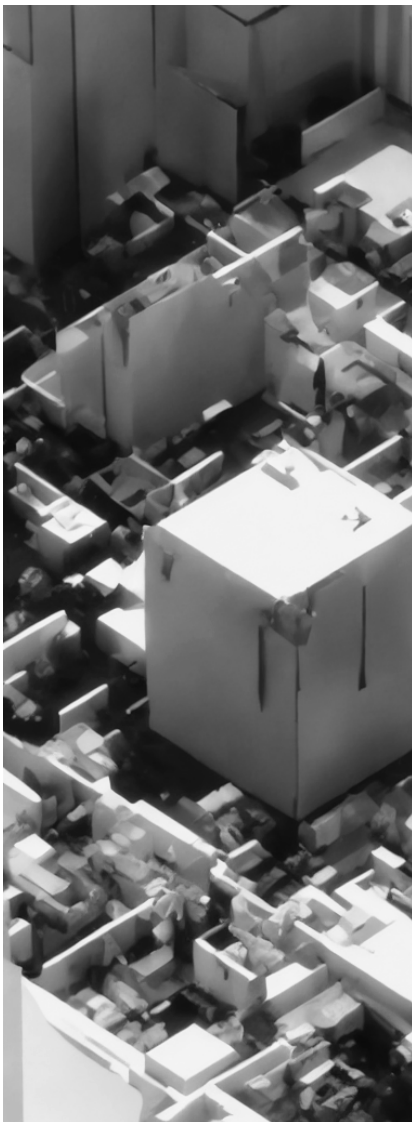
5.25. Aerial view of the City of Rooms in plan form as it encroaches Toronto, with roads. Frame collaged from aerial photograph of Toronto in 1992, courtesy of city of Toronto.



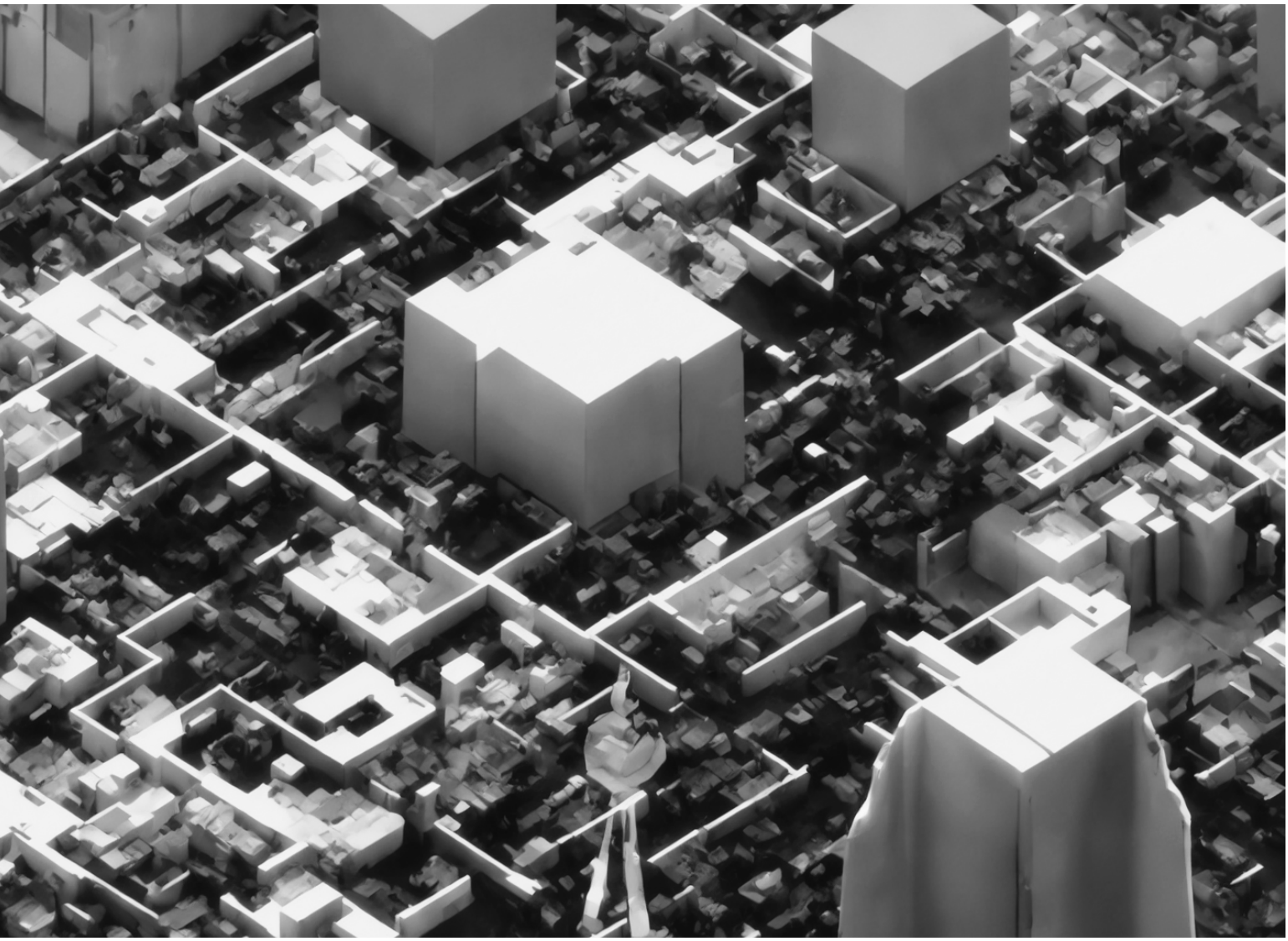
5.26. An aerial close up perspective of the downtown area, showing the CN Tower and the Rogers Centre, a popular tourist spot within the city. Aerial taken in 202, courtesy of Google Earth, subsequently collaged by author. Frame collaged from aerial photograph of Toronto in 1992, courtesy of city of Toronto.



5.27. Subsequent imposed plan on the closeup of the downtown area showing the City of Rooms. The CN Tower can be seen as a builidng that may remain within the City of Rooms as it may provide an opportunity for wayfinding. Frame collaged from aerial photograph of Toronto in 1992, courtesy of city of Toronto.



5.28. AI generated and further manipulated image. A horizontal sectional cut into the City of Rooms showing its relationship to Toronto in displaying a perspective axonometric of one of the floorplates. Other buildings can be seen popping through the section cut. Created with Stable Diffusion, using figures 5.32, 5.36 and 5.40 as a base for the img2img process, later edited with Photoshop and Firefly AI.



SPATIAL EXPLORATION

The following drawings exhibit an exploratory exercise between ChatGPT, Stable Diffusion and myself, in order to understand social qualities of the City of Rooms. With the masterplan being generated through the "thutcd01" LoRA—the LoRA trained with descriptive language—I wanted to explore neoliberalism's suggestion into how we live within this aggregate, mass construction.

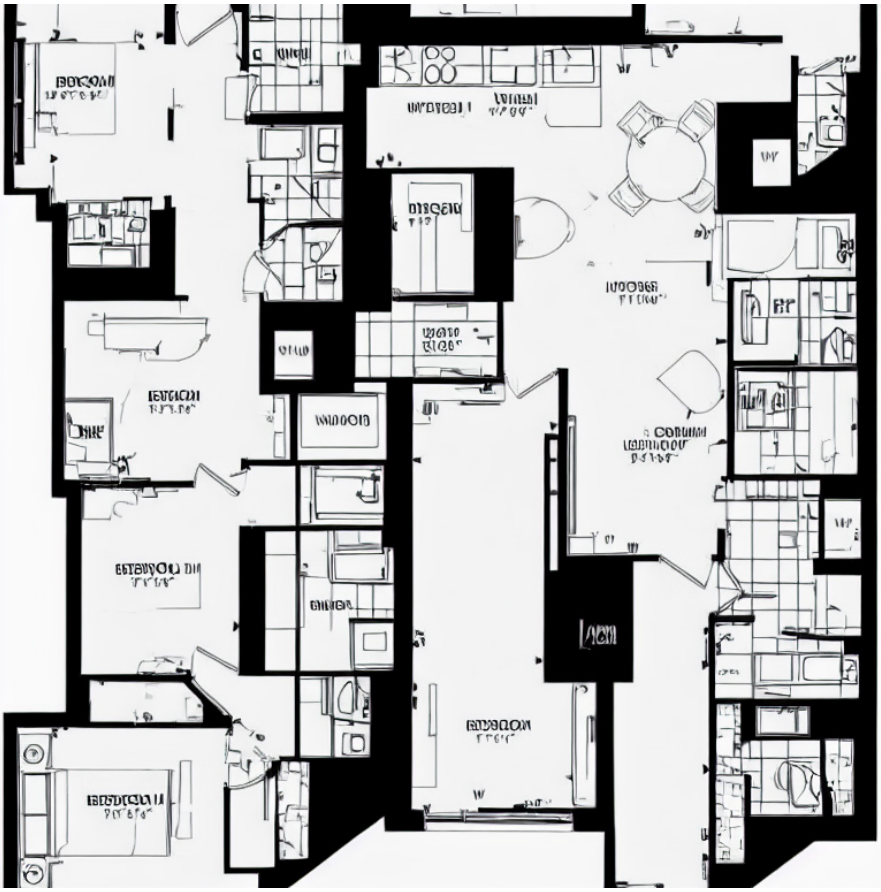
Three scenarios were explored, like snapshots into this mass city; the families who need to share to afford space, the single family who can afford multiple adjacent rooms, and the co-operative, overwhelming strangers who fit into larger rooms. Multiple generations of each prompt were produced, where I then

explored the common properties that were generated between all of the generations of the same prompt. One of the outputs was then chosen, and given to ChatGPT to analyze how it interprets the plan. The conversation I have with ChatGPT is noted.

This analytical exercise was then extrapolated back to the masterplan, in order to situate the prescribed suggestion of how each person should be living back into the city. An area within the masterplan was identified that spatially aligned with the social analyzed plan, where it was then illustrated through the form of an axonometric, to visualize exactly what neoliberalism is proposing.

The

Prompt: "A floorplan of a one
families struggling to



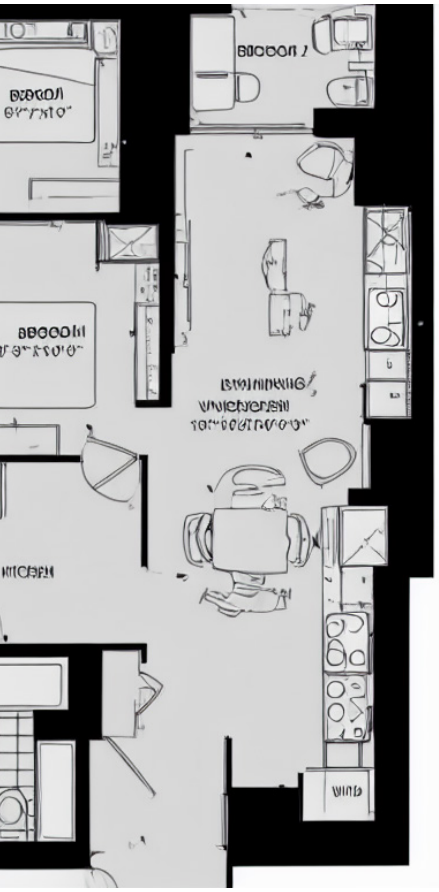
GENERATION A



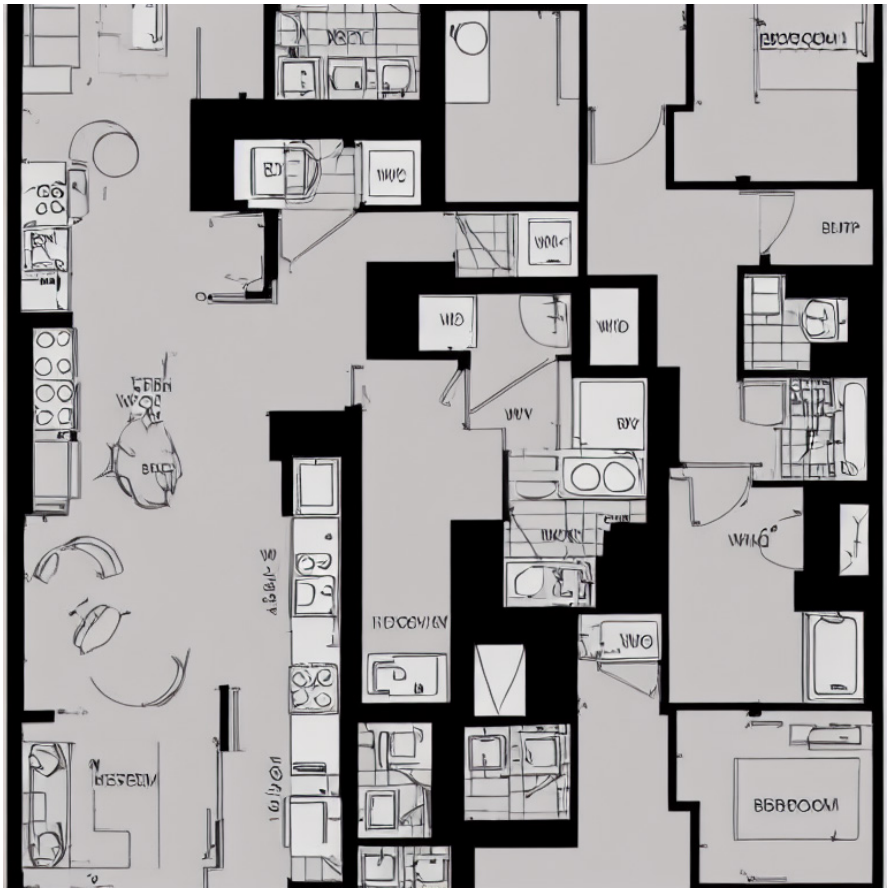
5.29. Three AI generated floorplans using the prompt of "A floorplan of a one bedroom apartment for three families struggling to afford an apartment." Generated with Stable Diffusion. Generations A—C are the same prompt but different seeds.

Cell

bedroom apartment for three
afford an apartment."



GENERATION B



GENERATION C

Prompt: “A floorplan of a one bedroom apartment for three families struggling to afford an apartment.”



5.30. Annotated AI generated floorplan of “A floorplan of a one bedroom apartment for three families struggling to afford an apartment.” Generated with Stable Diffusion.

CFG: 3

Dimensions: 768px by 768px



m2kaczma: This is a generated floor plan within the city of rooms. This plan was generated using a LoRA based off of Toronto condos. The prompt to generate this image was "A floorplan of a one bedroom apartment for three families struggling to afford an apartment." Can you narrate to me this what you see in this plan, how many bedrooms/bathrooms/kitchens you see?



ChatGPT 4o: This plan appears densely packed, with multiple distinct areas designed to accommodate three families within the confines of what would typically be a one-bedroom apartment.

1 Kitchen: Located near the center of the plan, the kitchen looks small and functional. This single kitchen is likely shared among the three families, which would create practical and logistical challenges for daily use.

3 Distinct Bedrooms: There are clearly three designated sleeping areas, one at the top left, one at the bottom left, and one in the middle-right of the plan. Each is separated by walls, suggesting individual spaces for each family.

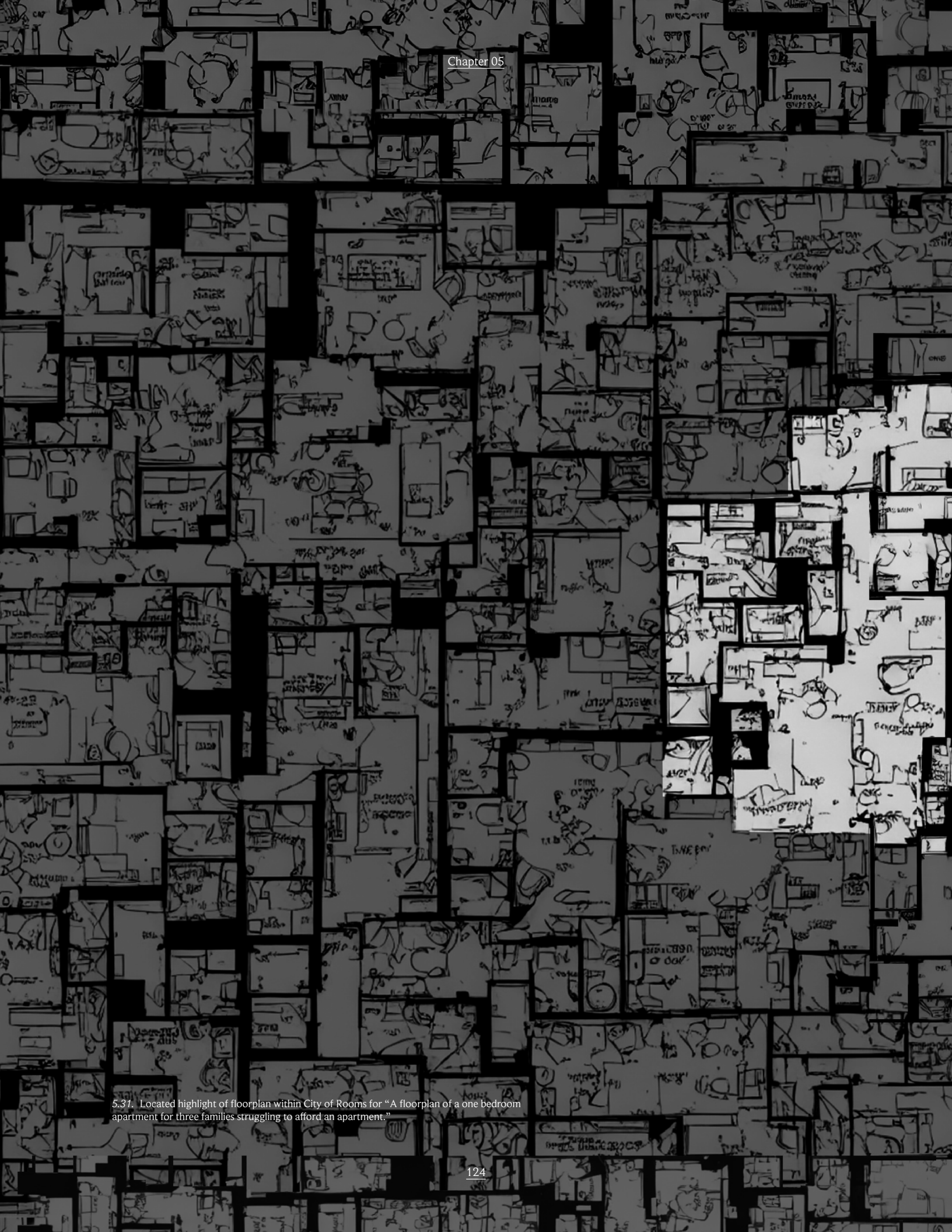
Bathrooms: These bathrooms appear compact but functional, likely a standard size.

Central Living/Dining Space: There is an open area in the center-right that looks like a combined living and dining space. It has a small dining table, which would be shared among the occupants. This room is connected to the kitchen and would serve as the primary communal area for all three families.

The plan reflects an architectural response to a scenario where space is extremely limited and families are forced to share a small unit. This layout exemplifies the extreme conditions of shared living in a city where housing affordability is a major issue, and it mirrors the difficulties faced by families in densely populated urban environments like Toronto.



m2kaczma: With the way this plan is organized in rows, it acts as if it's an institutionalized way of living. Segmented cells to sleep, a small living area with a table that seems out of scale to the other furniture, and a row of bathroom amentities brings reminder to that of co-living models, or even more drastically—cells.



5.31. Located highlight of floorplan within City of Rooms for "A floorplan of a one bedroom apartment for three families struggling to afford an apartment."





5.32. Axonometric of The Institution variation within the City of Rooms.



The Co

Prompt: A floorplan of a five be
family living in a highend r



GENERATION A

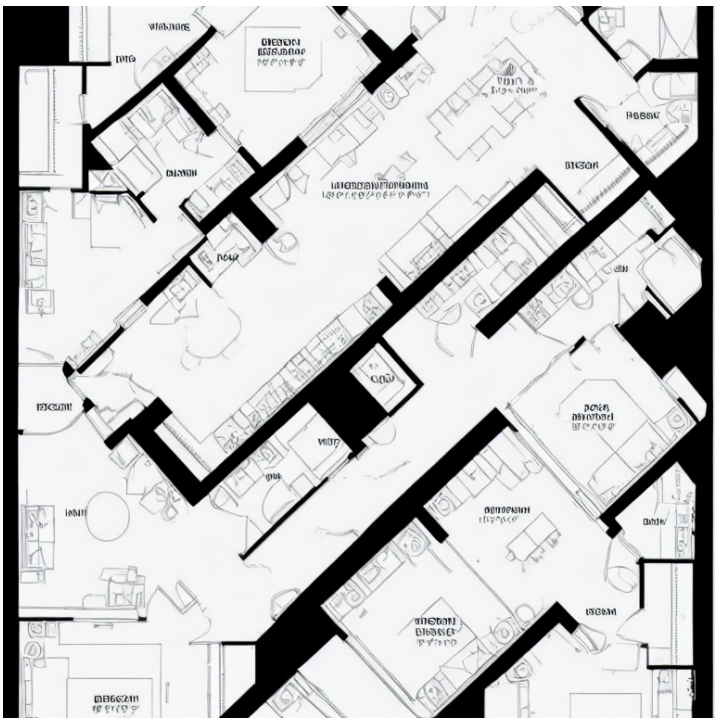


GENERATION B

5.33. Four AI generated floorplans using the prompt of "A floorplan of a five bedroom apartment for an affluent family living in a highend neighbourhood in Toronto." Generated with Stable Diffusion. Generations A—D are the same prompt but different seeds.

mmons

droom apartment for an affluent
neighbourhood in Toronto.

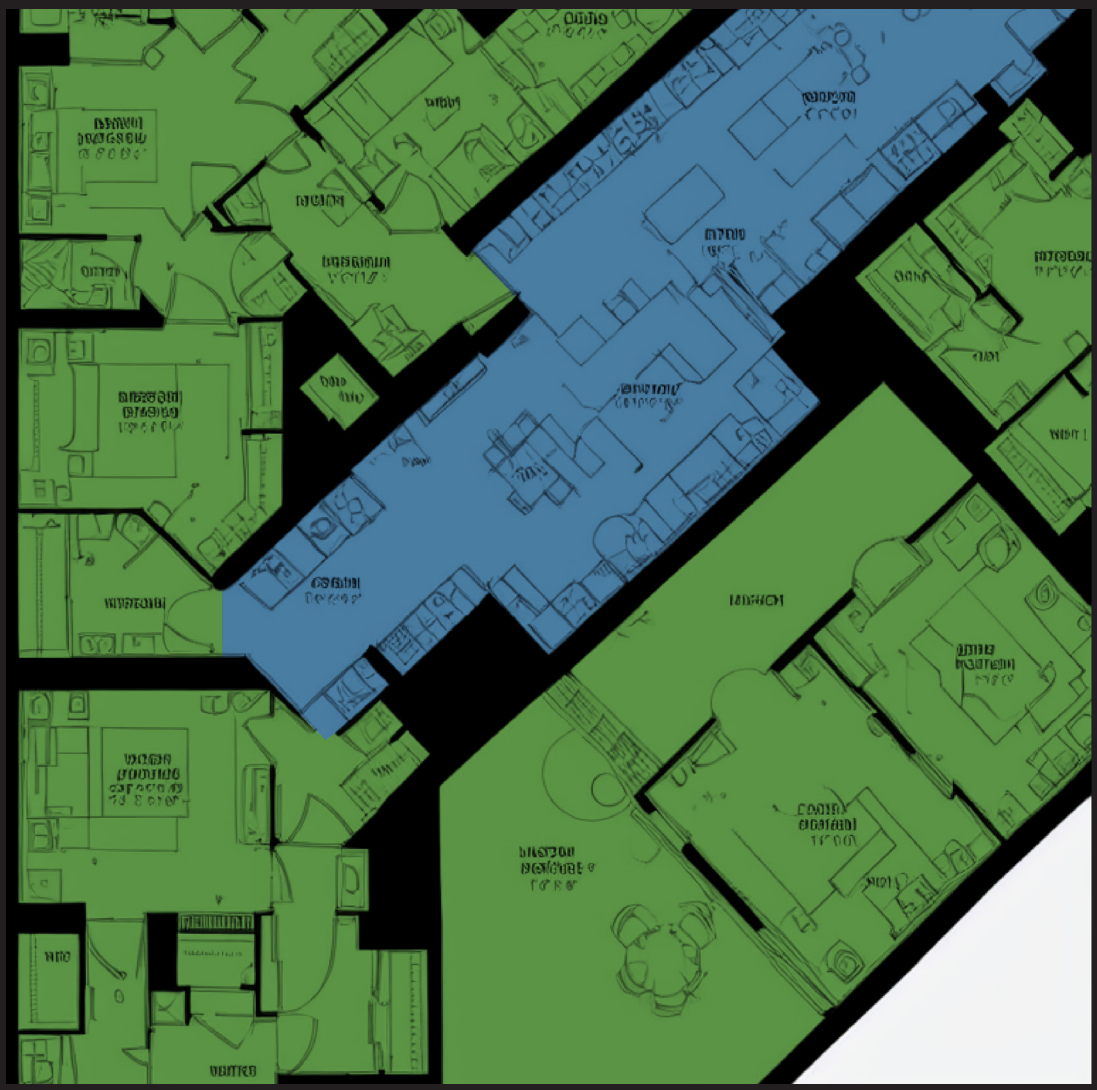


GENERATION C



GENERATION D

Prompt: <lora:thutcd02:1> A floorplan of a five bedroom apartment for an affluent family living in a highend neighbourhood in Toronto



5.34. Annotated AI generated floorplan of "A floorplan of a five bedroom apartment for an affluent family living in a highend neighbourhood in Toronto." Generated with Stable Diffusion.

CFG: 3

Dimensions: 768px by 768px



ChatGPT 4o: ChatGPT 4o: This floor plan depicts a five-bedroom apartment designed for an affluent family living in a high-end Toronto neighborhood.

The apartment sprawls horizontally, with a mixture of private bedrooms and shared living spaces, reflecting both the wealth of the inhabitants and the need for a balance between privacy and social interaction within the household. The five bedrooms are spread across the plan, with each room enjoying privacy and space that is noticeably larger than the typical unit in the City of Rooms.

Master Bedroom (Top-Left): The largest and most prominent bedroom, located in a prime position with what appears to be an en-suite bathroom.

Other Bedrooms: These bedrooms are spacious in their own right and likely accommodate children or other family members. Each is placed with relative privacy from the common areas.

The living room and dining area occupy a significant portion of the floor plan. The large, open-plan design contrasts sharply with the smaller, more efficient rooms found in other parts of the City of Rooms. The kitchen is large and well-appointed. It is located near the dining area, making it convenient for entertaining, and offers plenty of counter and storage space.

While much of the city is optimized to maximize space and minimize cost per square foot for the masses, the wealthier inhabitants, as depicted here, live in spacious, multi-room apartments with ample amenities and personal space.

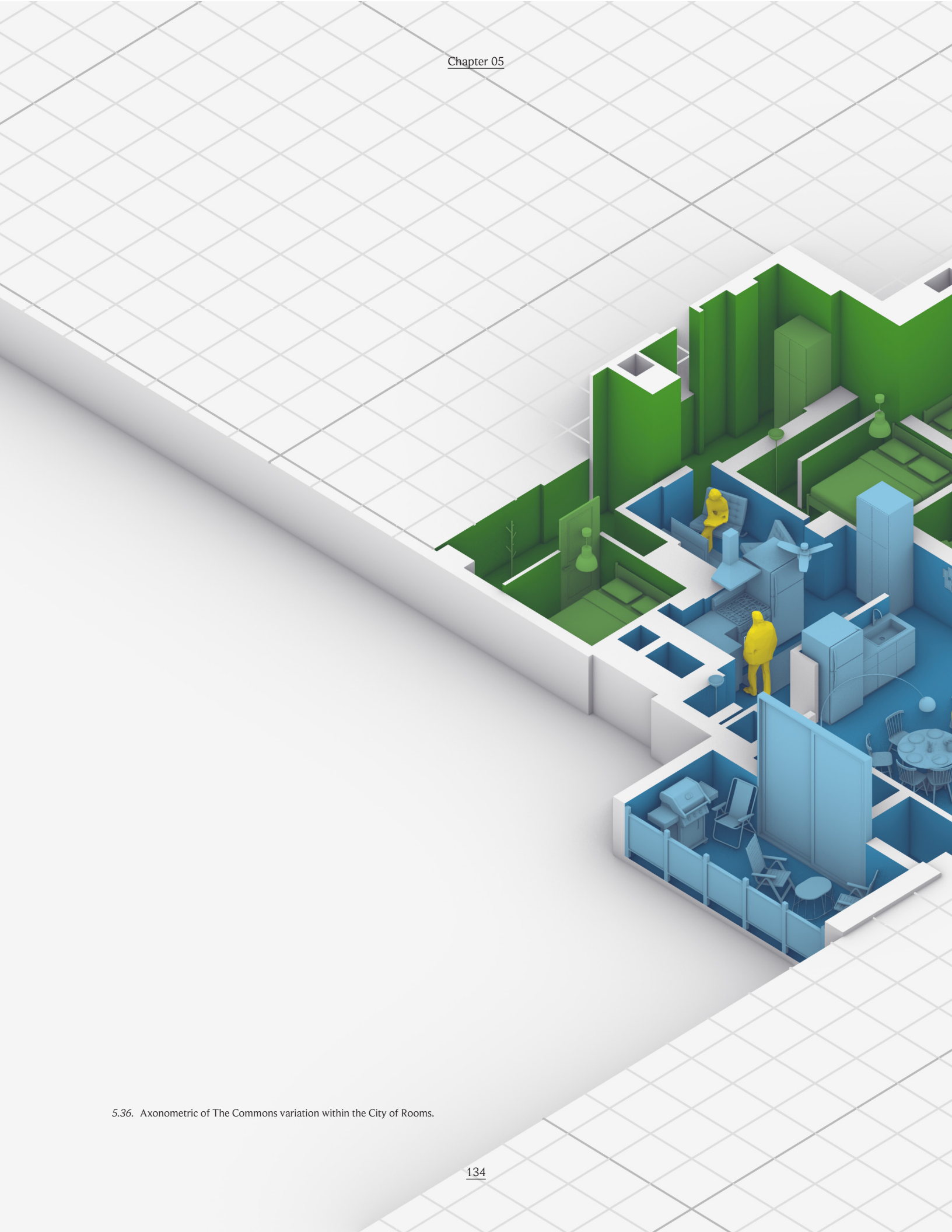


m2kaczma: In this scenario, the living/common areas seem to be centralized, with sufficient kitchen amenities to accommodate for a family that would occupy five bedrooms. Envisioning this as a multi-generational family, each person can afford some privacy within their own rooms, coming together. Interestingly, there did not seem to be an emphasis on bathroom generation as there was in other scenarios, which would bring to question if these families, despite their status, would need to share a bathroom with their neighbors.



5.35. Located highlight of floorplan within City of Rooms for "A floorplan of a five bedroom apartment for an affluent family living in a highend neighbourhood in Toronto."





5.36. Axonometric of The Commons variation within the City of Rooms.

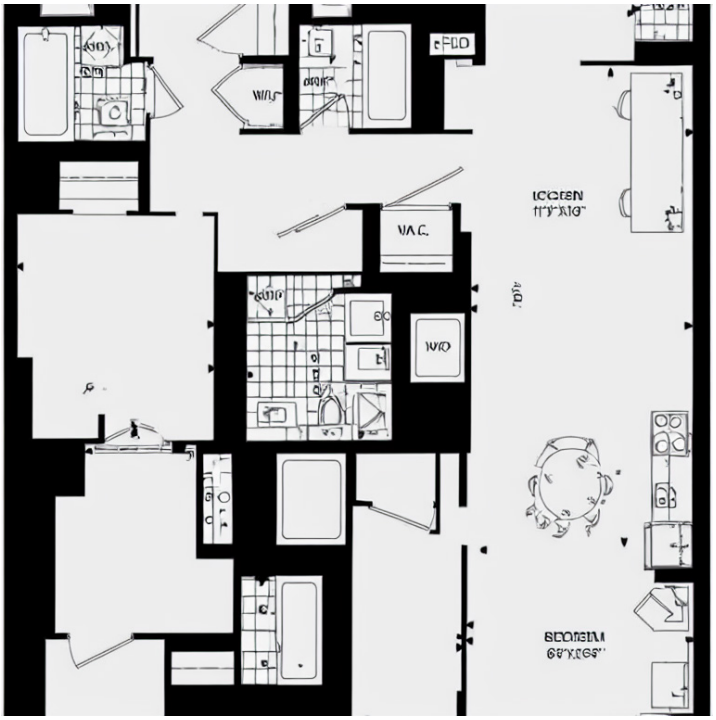


The D

Prompt: a floorplan of a one-be
to liv



GENERATION A

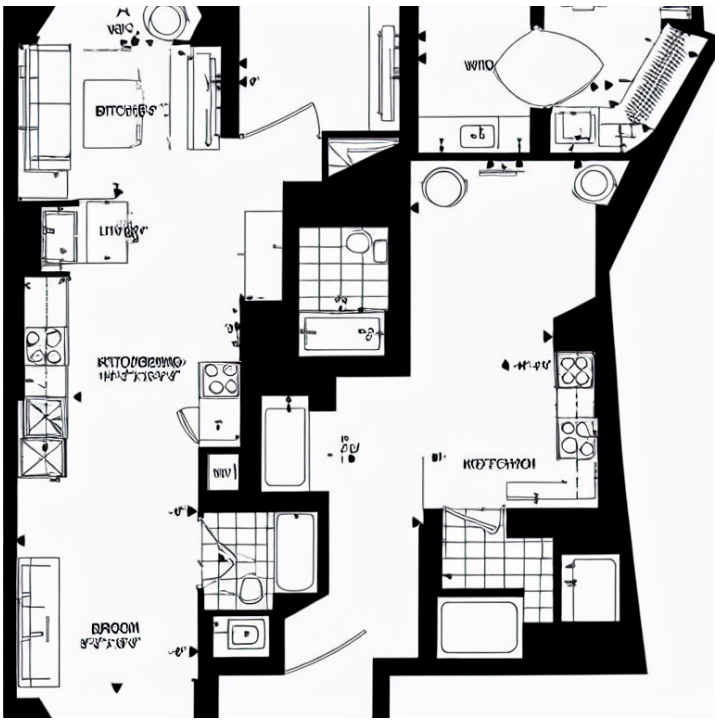


GENERATION B

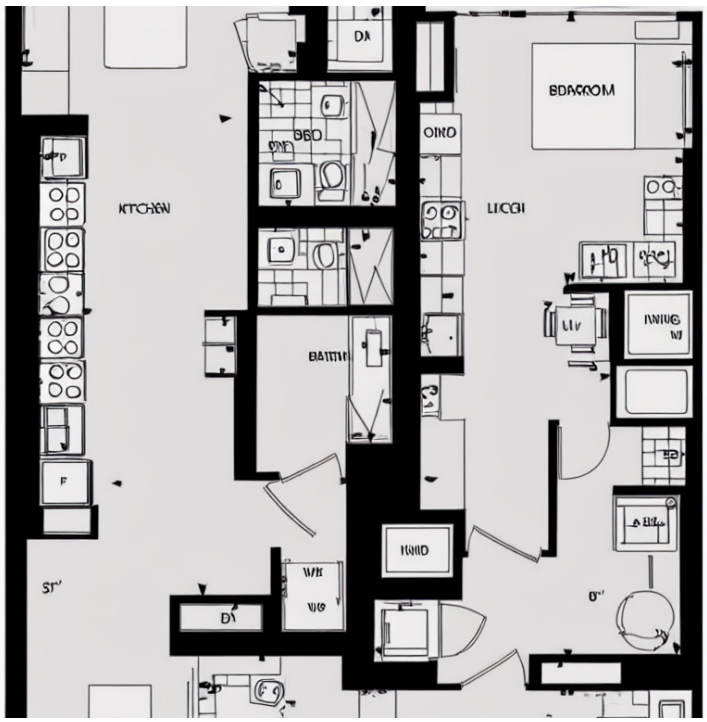
5.37. Four AI generated floorplans using the prompt of "a floorplan of a one-bedroom apartment for 50 people to live in." Generated with Stable Diffusion. Generations A—D are the same prompt but different seeds.

Dorm

edroom apartment for 50 people
ve in



GENERATION C



GENERATION D

Prompt: <lora:thutcd02:1> a floorplan of a one-bedroom apartment for 50 people to live in



5.38. Annotated AI generated floorplan of " a floorplan of a one-bedroom apartment for 50 people to live in." Generated with Stable Diffusion.

CFG: 3

Dimensions: 768px by 768px



ChatGPT 4o: While labeled as a "one-bedroom apartment," the layout seems to have been modified or repurposed to provide multiple sleeping areas. There are three distinct sections that could potentially be used as sleeping spaces:

In the lower left corner, there is a large area with a bed and additional furniture, which appears to be the primary bedroom. Adjacent to it, in the lower right corner, there's another room labeled as "BEDRM," indicating a possible secondary sleeping area with a similar setup. The upper left quadrant also contains smaller rooms with minimal furniture, possibly subdivided to fit as many people as possible. This setup could suggest a dormitory-like arrangement, with bunk beds or shared bedding.

The central space is labeled as a "LIVING" area, likely intended for communal activities such as dining, gathering, or even additional sleeping space. The area is small relative to the number of occupants, hinting at severe overcrowding and a lack of personal space. Given the population density, this space may be used for multi-purpose activities, such as eating, socializing, or even makeshift bedding arrangements during nighttime.

There appear to be two small bathrooms in this layout, located in the upper middle and right sections. Each contains the basic amenities: a toilet, a sink, and one also includes a bathtub.

With only two bathrooms for 50 people, this plan would result in extreme congestion and constant use, challenging basic hygiene and privacy needs.

The apartment is divided into small, compact rooms, each with minimal furniture, suggesting an effort to maximize the number of people accommodated. The rooms could be further subdivided or filled with multiple sleeping arrangements such as bunk beds or floor mattresses. The lack of open communal space or clear pathways further indicates the cramped and overburdened nature of the apartment, highlighting the challenges in maintaining a functional living environment for such a large number of people.

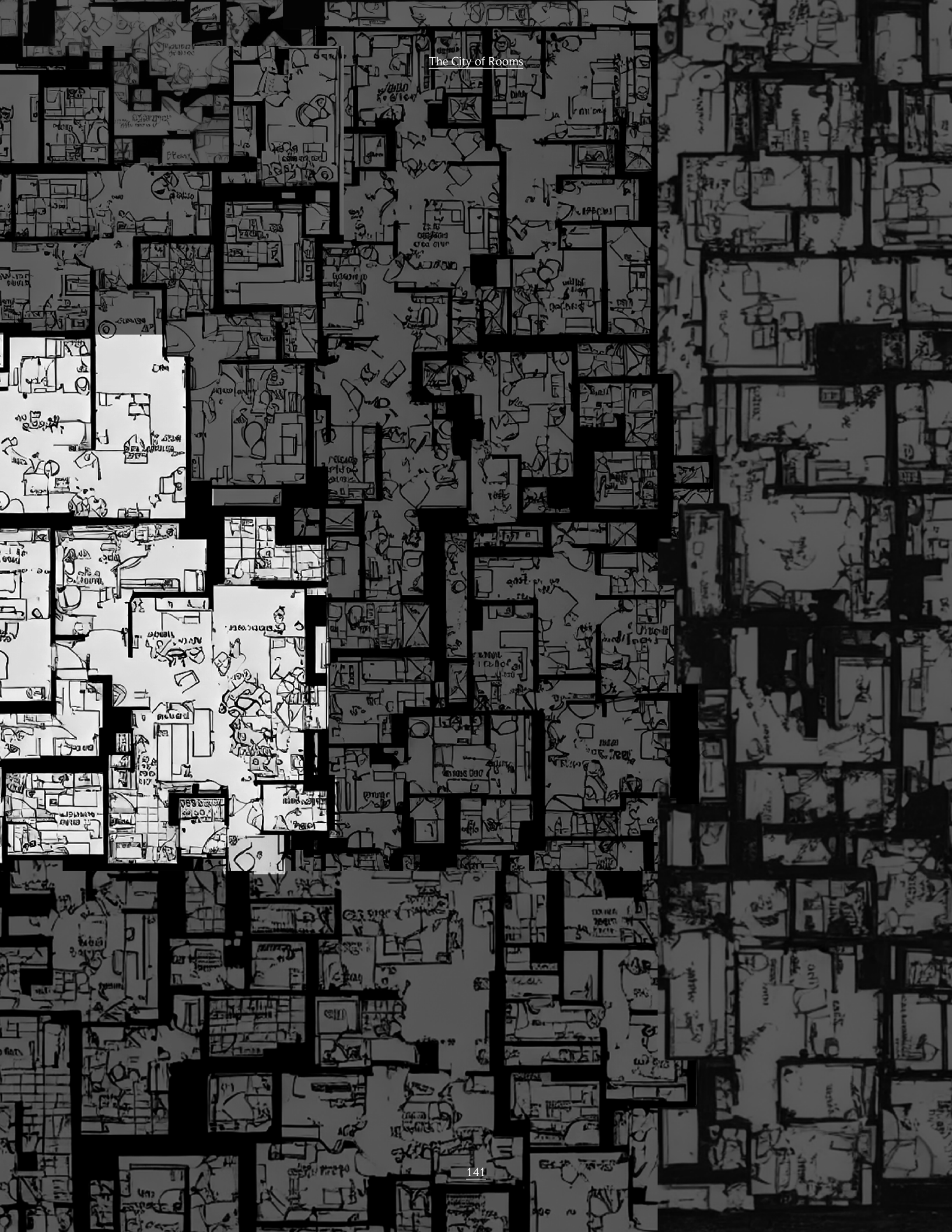
The architectural design lacks any sense of comfort, privacy, or personal space. Instead, it turns a typical apartment into a congested living environment where human dignity and basic living standards are compromised in favor of sheer occupancy.



m2kaczma: Interestingly, this plan has a resemblance to the one bedroom for three, as an example of limited rooms being provided for a large amount of people. A notable difference is the distribution of bathrooms, where in the earlier plan, it seems like the bathrooms might have harbored a private space to oneself as the family, but with the bathrooms being distributed throughout the bedrooms, provides a more accessible, but less intimate experience.

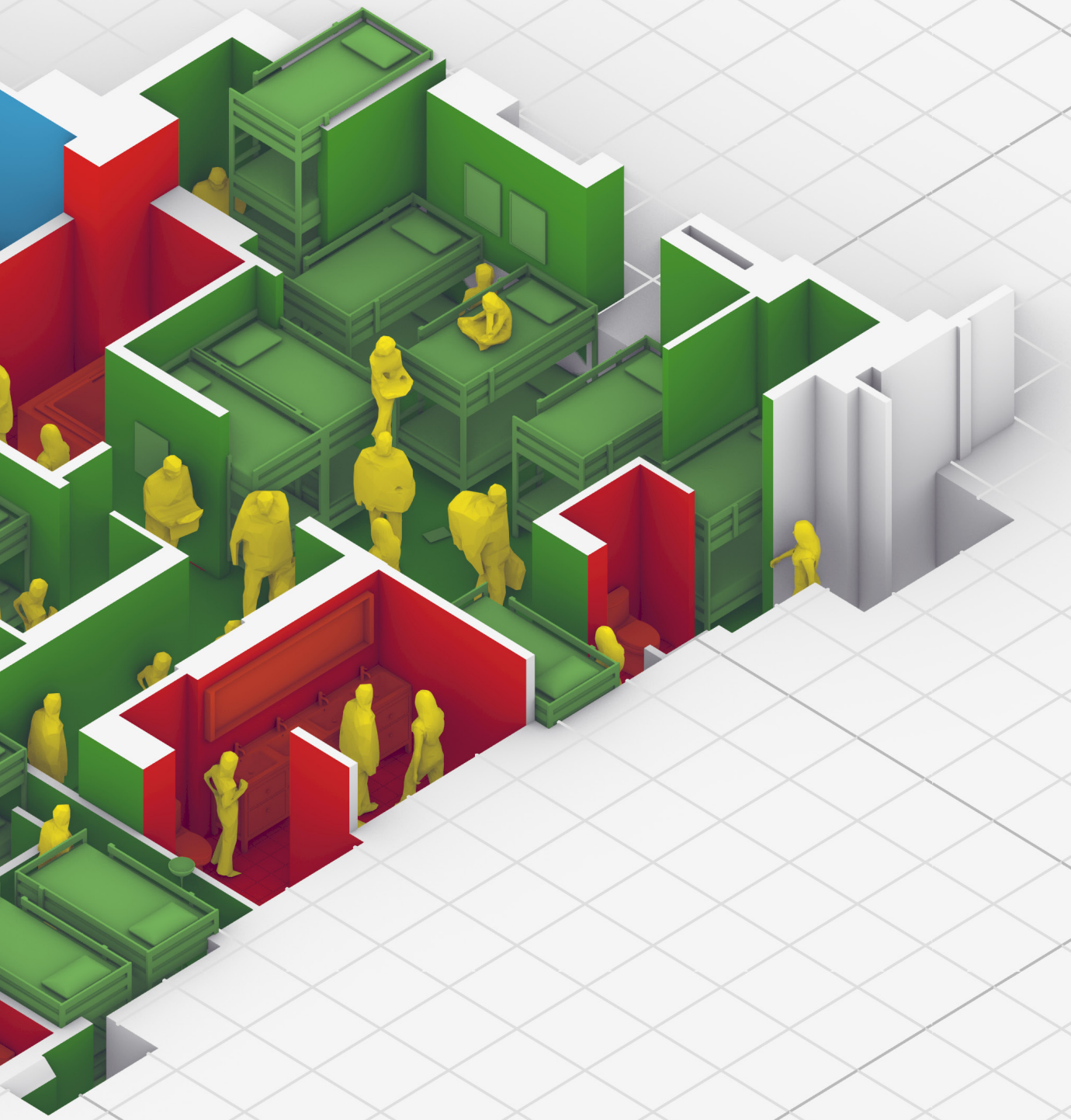


5.39. Highlight of floorplan within City of Rooms for " a floorplan of a one-bedroom apartment for 50 people to live in."





5.40. Axonometric of The Dorm variation within the City of Rooms.



CONCLUSION

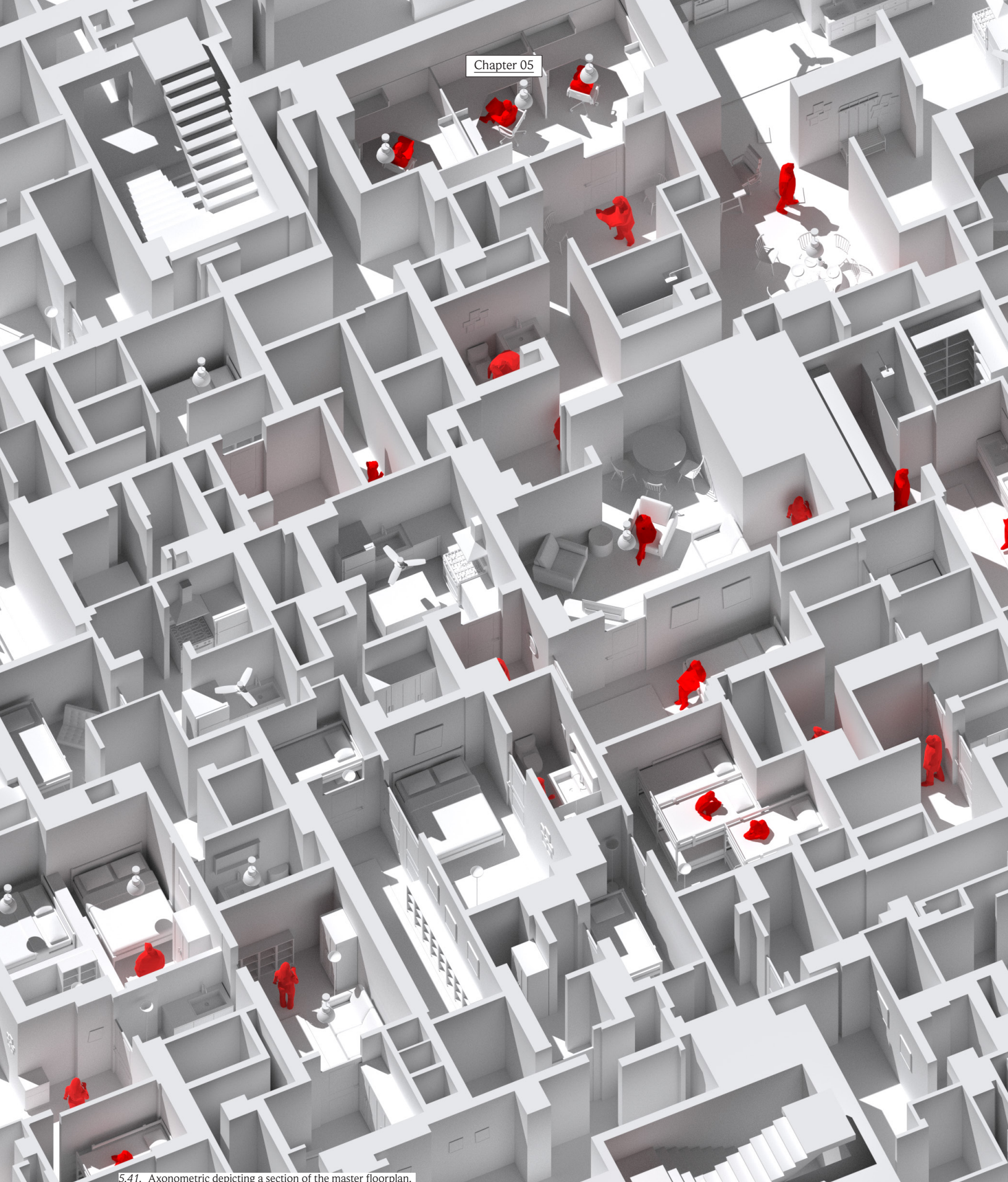
Within its utopia, neoliberalism has run amok. The affordability crisis has hit its peak within the city of Toronto, and neoliberalism responds as it does best—it must build. It must build with fervour, with intensity, for all to live within, and for all to buy. The hallucinatory properties of the neoliberalist mechanism have overridden the city grid, completely eliminating the need for all else, but the room. In its redefinition, the room becomes an aggregate unit, parasitically building where it can, and where it must—to keep the neoliberalist mechanism afloat. The future is co-living, the future is to optimally live, and as no society, the formless imposition of living reflects this. Artificial Intelligence joins neoliberalism in this in almost a mutual understanding, through its generative state, iterating self-perpetuatively without much thought in its output.

Minimal, yet interconnected.

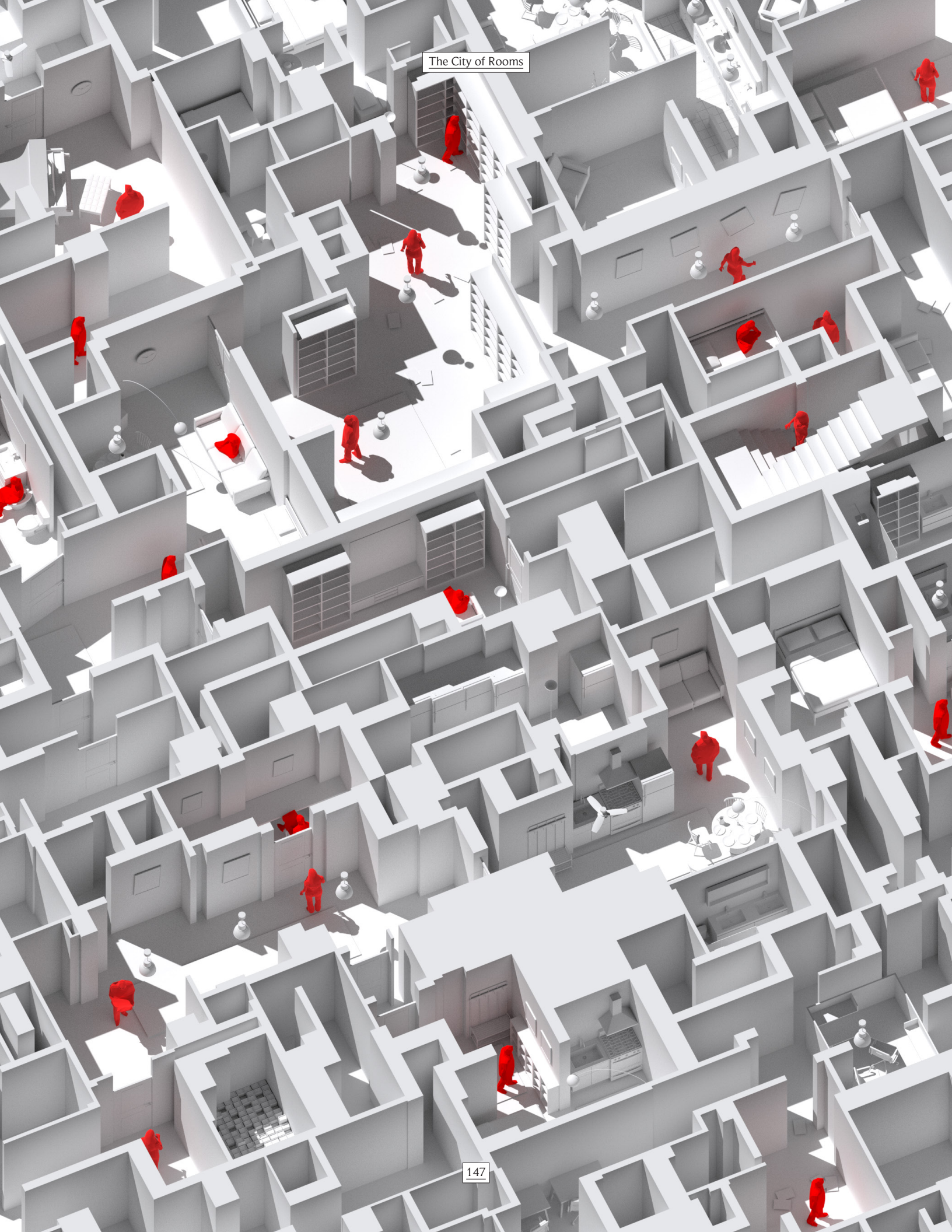
Endless generations.

Endless cores.

Endless rooms.



5.41. Axonometric depicting a section of the master floorplan.



06

CONCLUSION



6.1. Supersurface, The Happy Island, project, 1971, Superstudio: Gian Piero Frassinelli, Alessandro Magris, Roberto Magris, Adolfo Natalini, Cristiano Toraldo di Francia, Alessandro Poli, Courtesy of MoMA.

UTOPIA, REVISITED

My research started with utopia. In a global time of uneasiness, I took an interest in the so-called utopian 'vision' that architects would frequently be in dire pursuit of. In particular, I became fascinated with how the Italian Radical Architects were able to create images of blatant anti-utopias and have it remain within a utopian realm. To me, the work of Superstudio and Archizoom was nonsensical—even if hyperbolic, I questioned why they were able to use the word utopia within their projects when their work explicitly being anything but?

A lot of my early research consisted of exploring the extents of utopian properties. I went to great lengths to explore in depth what utopia really is, how it is used, and even explored its usage across multiple disciplines. Ultimately, it quickly began occurring to me that utopia seemed to exist in state of assistance, as rarely is utopia employed as an entity itself, but it always had to refer to something else in order to be relevant. It, as a concept, would consistently be usurped by a fantasy of the future, and at times the dystopia, as utopia always needed an ideological appendage to the 'ideal space.' I believed, and still believe, in the complexity of utopia on its own, its inherently dialectical nature and how it seemed like humanity couldn't get enough of it.

Convinced by its prospects, I pursued my thesis with the goal of developing a critical framework for a situated utopia as a generative tool for world building and social imagination. But with increasing research, a couple of things became clear to me. First, that utopia has a uniquely attractive property to architects, in that it fundamentally addresses and questions how we are to live. This question is something that architects are consistently pursuing, as we design spaces for various people, various functions, and various climates. Architects don't view themselves as belonging to a profession that merely "builds buildings," rather most desire to serve society in a fundamental way: to make beautiful spaces that can help people reach their full potential.

This is what utopia strives to be, which brought me to the second realization: the fundamental architectural property of utopia. Utopia is not a utopia without the —topos, without the 'place.' Despite the concept being frequently used within the sociological, philosophical amongst varying other disciplines, the spatiality of utopia is very evident.

I therefore concluded that in order to address utopia, it is important to address an architectural problem. Utopia's benefit of being a critical tool that allows it to be interpreted widely, and in order to serve its full function, it must function as critique. In this way, utopia is complete when serving a social dimension, and I became very interested in investigating that aspect of it.

CONCLUSION

After all, utopia is not usually explored in stable times. Conceptually, it has often emerged when there was a strong ideological shift in society, when people were tired of the status quo and wanted change. As with art, idealism was always re-explored when new knowledge was uncovered in humanity. Within the 70s, for example, the Italian Radical Architects were dealing with unpredictable governments, global tensions and a sudden question of climate change that they felt the need to respond to. Right now, perhaps this work explores a reintroduction of utopia as an exploratory concept to safely examine the shortcomings and conflicts of our systems we have in place. That existing conflict, particularly within the North American system, is neoliberalism, and now, being bolstered with AI.

This utopia, when taking it to neoliberalism at its logical conclusion, is inevitable, a conclusion to Thatcher's claim of there being "no society." What may end up deciding the way we live is a decentralised, aggregate of individuals, as that is what neoliberalism wills. In an effort to defund affordable housing and deregulate financing in the 80s to promote an independent, small government ideology, private investors have seized the opportunity to privatize what they can, promoting investors to continue to invest, relegating to a total commodification of the housing market. Without government intervening, the neoliberalist ideology perpetuates, and with it, the illusion of house ownership.

Artificial Intelligence allowed for the hyper-illustration of this self-perpetuating act. As a tool that has grown through iteration, and is continuing to iterate beyond anyone's imagined scope, it acts as thematic link within the context of the neoliberalist perpetuative state. While observing the state of Toronto's housing crisis, it was crucial that the problem being perpetuated in the city was accurately represented. Because of AI's requirement of data input to produce output, this gave me the opportunity to use real data collected from Toronto condominiums to directly highlight the issue. An existing evident problem that can be observed within Toronto are the increase of minimal effort and minimal quality condominium buildings being constructed in the city, with the goal of being investment properties for folks to rent out for an exorbitant price.

To synthesize, this thesis explored the idea of minimum dwelling in three ways: one through the utopia and the ideality of living, the second through the neoliberalist perspective of its adoption and commodification, and through the third of efficient iteration as present through the procedure of Artificial Intelligence.

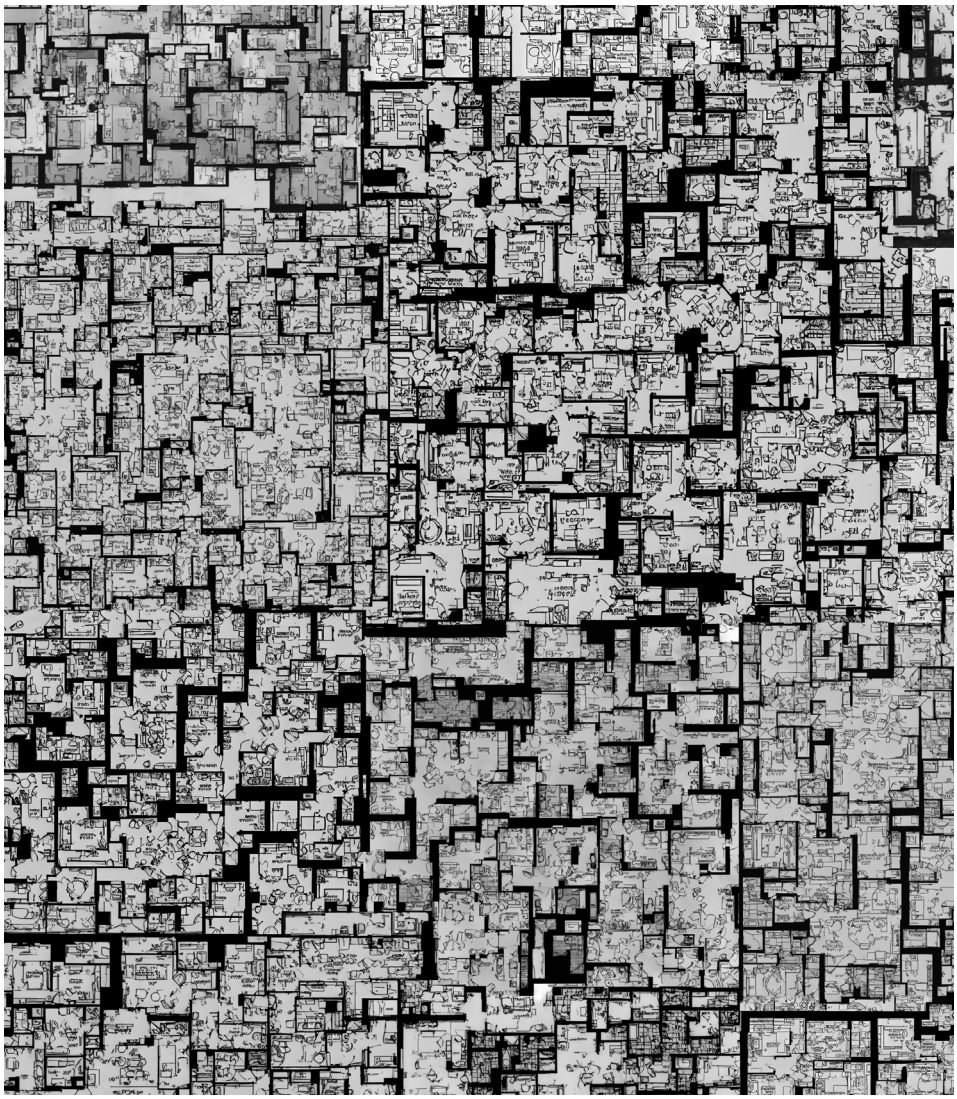
With all of this said, it is important that I return to the definition of utopia as established earlier in the thesis:

"A Utopia is an invitation to perceive the distance between things as they are and things as they should be."[1]

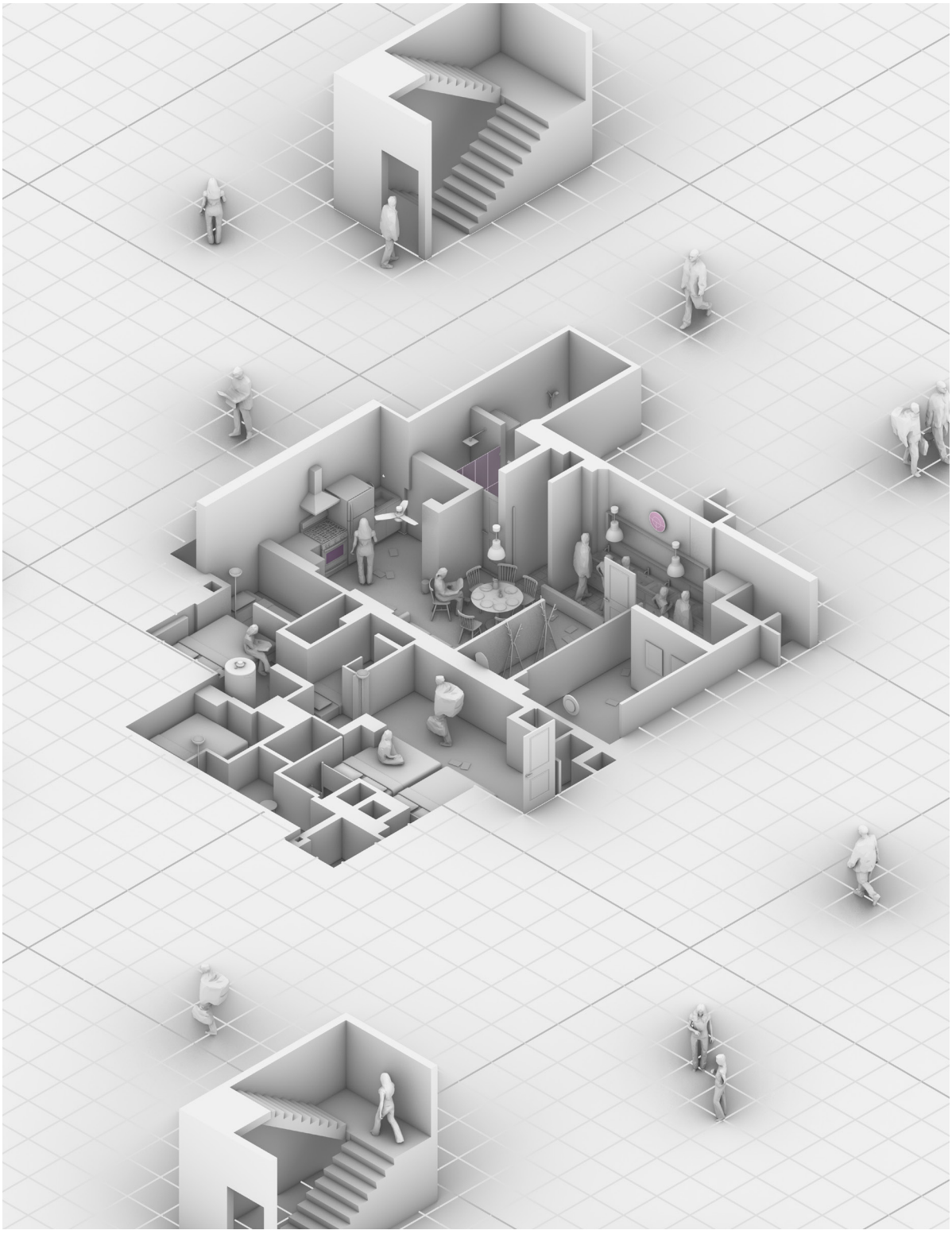
To explore the neoliberal hallucination, utopia allows us to look into its intentions, investigate its world, and learn from its mistakes.

☰

1 Miriam Eliav-Feldon, Realistic Utopias: The Ideal Imaginary Societies of the Renaissance, 1516-1630, Oxford Historical Monographs (Oxford New York Toronto: Clarendon press Oxford university press, 1982).



6.2. A closeup of the masterplan of the City of Rooms. Collaged AI images.



6.3. White render of The Cell type from the City of Rooms.

REFLECTION

In reflecting upon the methodology of my thesis, I was able to achieve a balance of intent with Artificial Intelligence tools. The primary takeaway in working with these tools was in exploring and investigating an application of how to incorporate AI tools within the design process. Instead of a focus on the output of AI tools, it was used to investigate its potential to create and narrate, rather than just as a tool of pure production. I believe this is where Artificial Intelligence particularly excels in: as a powerhouse of idea generation, augmenting the individual's capabilities and executing a vision, rather than relying on it as a final step of production. In addition, it particularly is an interesting tool when armed with accurate data fed by the user: in direct reference of a dataset, such as LoRA finetuning, it is able to be a powerful design tool, incorporating vast amounts of design decisions that an individual would simply not be able to do within a limited time frame, such as a design profession.

A lot of the challenges of this thesis were due to time limitation and hardware limitation. For example, in future discussions about the methodology employed, a greater dataset would be collected, ideally of as many condominium floor plans as possible in order to gather a more in-depth snapshot of trends within condominium living. While I did collect floorplans from each side of a city in order to more generally represent different neighborhoods within Toronto, refining the LoRA with more data and more description would have vastly improved the outputs being generated.

Additionally, sections of condominiums were impossible to acquire within the scope of this thesis. While condominium floor plans are used to advertise a space for potential buyers and therefore were more easily accessible, sections are only developed within architecture offices, most often for internal use. However, being able to acquire different sections of condominiums to run through a similar process as the floorplan might have yielded interesting results, and is a potential avenue in continuing to pursue this work. In addition to sections, collecting renderings made from firms could result in an interesting, amalgamated image. This, at the time of the thesis, was out of scope, however in progressing this thesis further would probably be the next step.

That being said, it would be interesting to revisit this process once AI, particularly generative AI tools become even more sophisticated. There was a thorough understanding in the process of this thesis that we are just on the precipice of the full potential of the genAI tools, that working with these tools and models could, and would, quickly become outdated. That is why, in setting up the research and methodology of this thesis, that this thesis relied less on the tools, and how the tools were being used to support the thesis. As a result, I would be curious to see how this thesis can be replicated once the AI tools become more sophisticated, models become more refined and tools of model augmentation become more accessible.

ADDENDUM

DEFENCE DAY

Included in this section are photos taken on the day of the defence. Drawings were suspended from the ceiling, allowing the audience to more directly engage with the work.



6.4. View of the front of the room on defence day, on November 26, 2024, in the Founder's Lounge at the University of Waterloo School of Architecture.

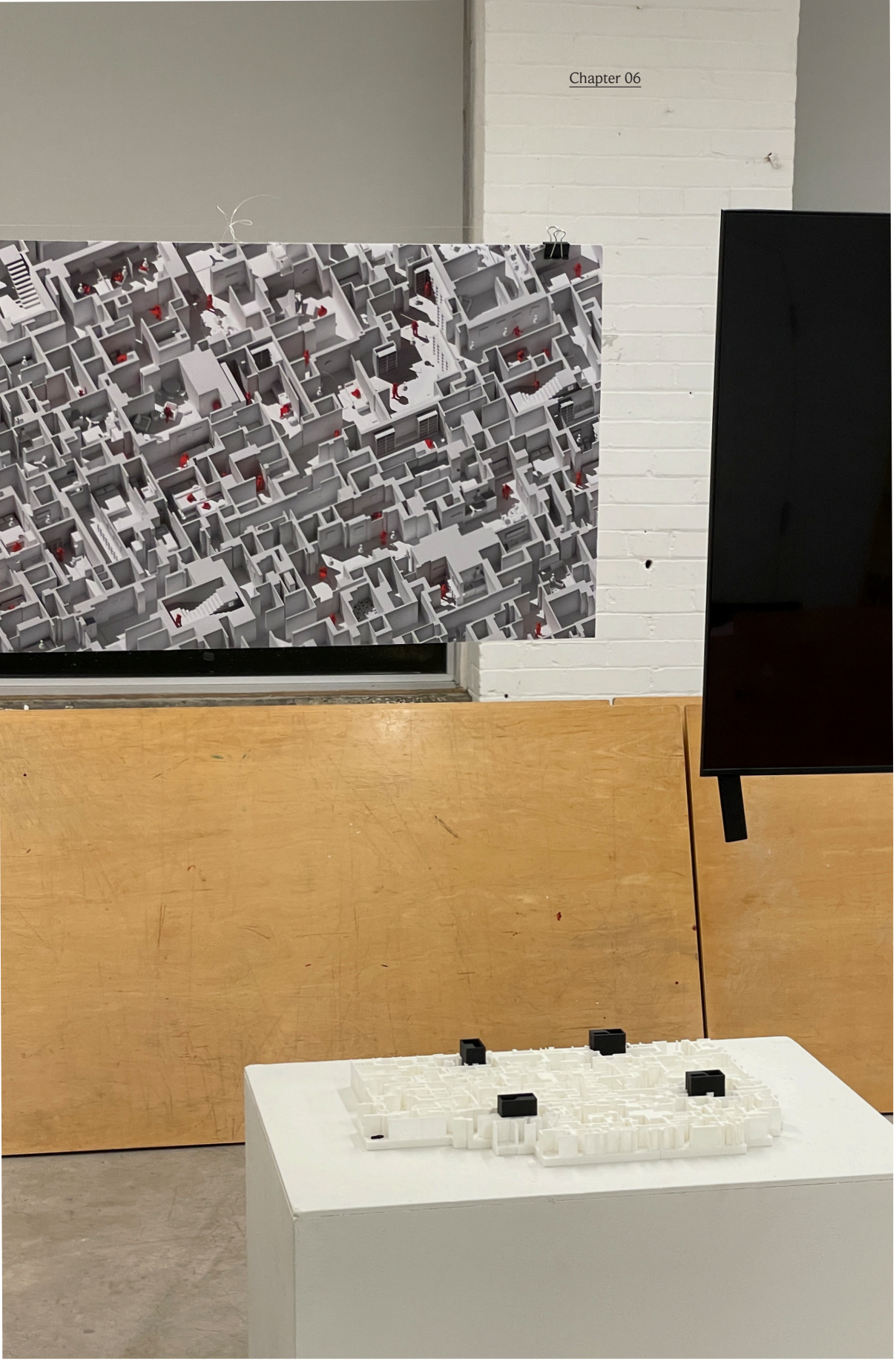




6.5. A photograph of the defence space.The Masterplan was hung in the center of the room, amongst the audience.

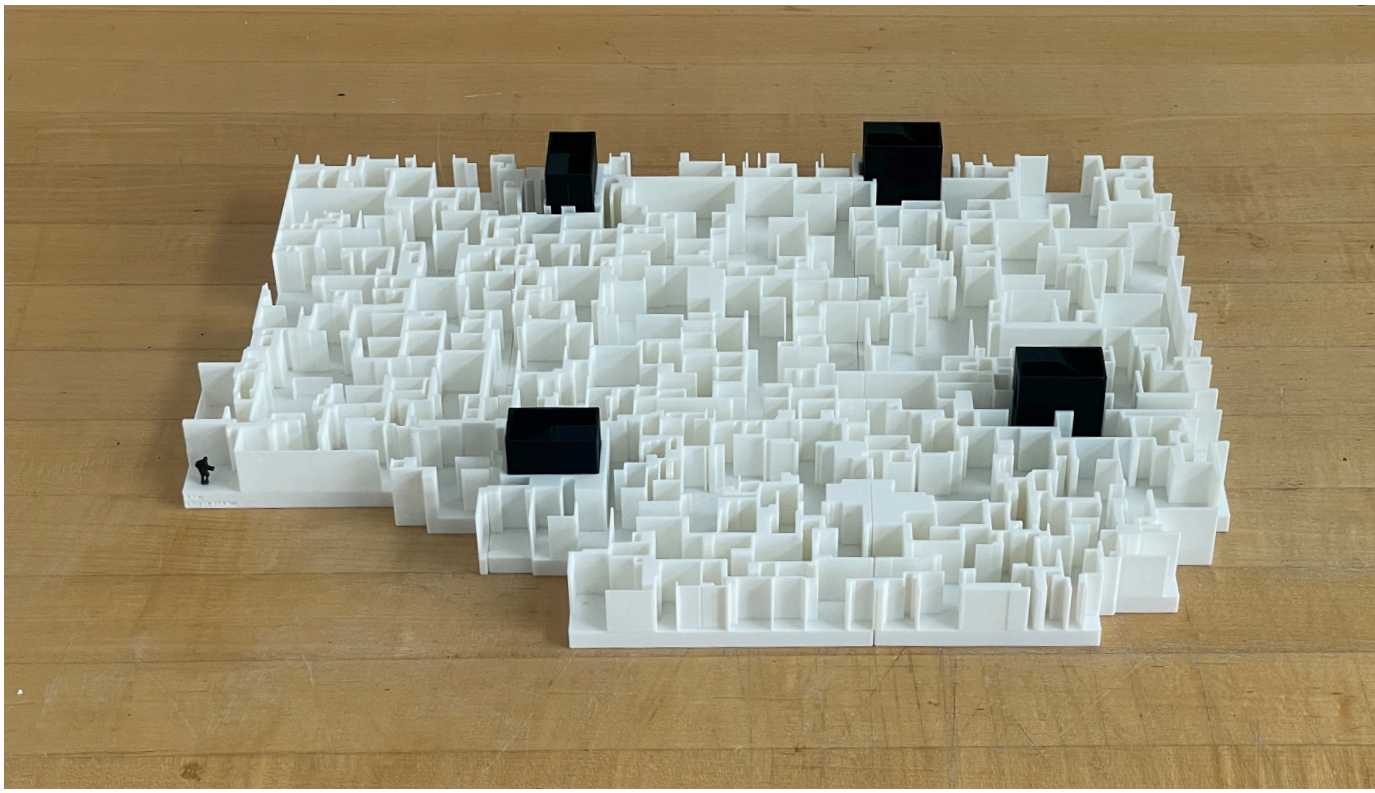


6.6. The right side of the room, showcasing AI generations with the axonometric studies hanging in front.



6.7. Large axonometric, with a physical model depicting the same space.

6.8. A close up of the model of the City of Rooms. 3D printed using PLA.



ON CITATION

As of writing this thesis, academia is still in the process of debating how to properly cite the usage of Artificial Intelligence in written work, such as papers, or theses. When it comes to citation, the intent of citing is to attribute ideas and work to their rightful owners.

With Artificial Intelligence, this gets complicated very quickly.

There are several levels to this: the most straightforward is the use of a LLM chatbot, such as ChatGPT. Ask a question, have it generate an answer, and since that idea is certainly not your own, it must be cited. But in the realm of a generated image, the prompt is created by the user, but the dataset it uses to generate the image is not. In fact, datasets can contain multiple hundred thousand, if not millions of images that are owned by different individuals. Does the attribution of an outcome of an image lie in the output? In the owner of the dataset? Or in the millions of individuals who may have their images unconsentingly incorporated within the data?

The associations attributed to the MLA and APA styles of citations have released their guides on citation when using Artificial Intelligence.[1,2] Currently, the Chicago Manual Style, the citation style used within this thesis, has yet to release a guide on proper citation for Artificial Intelligence.[3] In my opinion, the current released citation guides are still lacking, as it seems their citation practice does best for LLM chatbot usage. Despite this, all citation associations do give recommendations on best practices, and in this ever-changing AI landscape, I believe it is important for designers to be transparent when using AI tools.

As I am directly engaging with the tools as a core concept of my thesis, my intention was to use Artificial Intelligence explicitly as a mode of representation and investigation—not as a tool to research. For transparency, I have indicated all AI work done within this thesis to the best of my ability. All tools used and developed are outlined both within the context of my writing, and/or through the captions describing my images, alongside their prompts—not only to provide as much appropriate credit to any (unconsenting) data used, but also to provide as much clarity into the process, and to further how we can further engage in these tools with criticality, but with excitement.

☰

1 "How Do I Cite Generative AI in MLA Style?," MLA Style Center (blog), March 17, 2023, https://style.mla.org/citing-generative-ai/.

2 "How to Cite ChatGPT," https://apastyle.apa.org, accessed December 4, 2024, https://apastyle.apa.org/blog/how-to-cite-chatgpt.

3 Karina Arrambide, "Research Guides: ChatGPT and Generative Artificial Intelligence (AI): AI-Generated Content and Citation," accessed December 4, 2024, https://subjectguides.uwaterloo.ca/chatgpt_generative_ai/aigeneratedcontentcitation.

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