Anatomy of a Prompt: a Semiotic System of Text-to-Image Gen AI

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Abstract

Text-to-image Generative AI (Gen AI) introduces a novel perspective on the notion of drawing as a language. This study employs Saussure's Semiotic Theory to investigate how architectural and interior design prompts in DiffusionDB (part-000001) function as a semiotic system. The filtered dataset includes 246 architecture-related prompts (APs) and 276 interior design-related prompts (IDPs), validated through random sampling and visual inspection. Among the APs, 98% featured terms like 'architecture' and 'design' with 'building', 'nature', and 'archdaily' appearing in 71-72%. Other prevalent themes included 'city' (59%), 'art', and 'digital' (48%), reflecting a conceptual emphasis on physical structures integrated with environmental and stylistic elements. In contrast, IDPs showed a 100% occurrence of 'style', followed by 'light' (74%) and 'concept' (63%), suggesting a focus on stylistic expression and ambient qualities. The findings indicate that APs center around 'building' as the core term, while IDPs are anchored by 'style'. Notably, ArchDaily and Artstation emerged as linguistic and visual archives, informing the prompt structures. This semiotic analysis reveals that Gen AI users consciously employ architectural vocabulary and artistic techniques, crafting prompts as intentional design compositions that bridge language, imagery, and social meanings in architecture and interior design.

Keywords: drawing, semiotic system, Generative AI, prompt, visual language.

Introduction

A picture is worth a thousand words –this adage encapsulates Massironi's taxonomy of graphic communication. Visual elements– through their defined units, categories, and rules – form the nonverbal language that expresses the complexity of societal meanings [Massironi 2002]. As Mario Trimarchi stated, "I start talking to those things and sometimes they talk back to me, but instead of using words I use drawing" [Trimarchi 2022, p. 23]. Drawing –to architects and designers– is an act of transcribing abstract ideas into tangible entities that evolve, adapt, and convey values, beliefs, and practices that embody the meanings of social interactions [Melis 2023]. Nevertheless, the rise of digital and computational technologies, particularly Artificial Intelligence (AI), has sparked concerns about whether these tools weaken drawing's role in expressing, negotiating, and building meanings by bypassing the analog, iterative brain-to-hand process [Palestini 2022; Florio 2023]. Has drawing lost its relevance in the post-information era? Not quite. Instead, now is the ideal moment to re-contextualize our perspective on drawing as a language amidst transforming technologies like AI. "Writing is the ability of fixing thoughts in signs" [Leroi-Gourhan 1964 as cited in Papidou 2014, p. 23-32]. This notion challenges Massironi's [Massironi 2002] taxonomy of graphic communication by asserting that language is the semiotic foundation that precedes drawing, rather than treating the two as parallel systems. Saussure's [Saussure 2011] Semiotic Theory – aligning with Leroi-Gourhan's insight–also recontextualizes

drawing as an extension of the linguistic system, where the 'signifier' (expression) produces the 'signified' (thought), shaping a cohesive visual sign that embodies and communicates meanings. Thus, the prevalence of drawing remains but its manifestations evolve from visual elements into new expressions, such as the textual tokens of Generative AI (Gen AI).

In fact, Gen AI is not a product introduced by the post-information era to undermine the analog nature of hand-to-brain iteration in drawings. Since 2002, when Massironi's taxonomy of graphic communication became well-known, architects and designers have been experimenting with early-developed generative media to produce distinctive and unforeseen drawings [Soddu 2002]. In other words, units of graphic communication are not static but continuously evolve with societal changes, bringing new practices –like perspectives and technologies– to architects and designers. Yet, the transformative advancements in Gen AI –distinct from traditional analogs– obscures the perception of this technology as a powerful and important drawing medium.

In this paper, I explored drawing through text-to-image Gen AI using Saussure's [Saussure 2011] semiotic lens, focusing on architectural and interior design prompts – revealing how architectural and interior design prompts act as 'signifiers', their generated images as 'signifieds', and how their interaction creates a cohesive visual language. Similarly, Dade-Robertson [Dade-Robertson 2011] positioned 'information' at the core of architecture –or more broadly, the design of the built environment– arguing that digital media expands, rather than hampers, our ability to convey meanings through drawings. However, Saussure's [Saussure 2011] semiotic lens reveals the structure of abstract thinking, as reflected through linguistics, and is thus more helpful in dissecting the nature of Gen AI as a novel drawing medium. With DiffusionDB [Wang et al. 2022], a dataset with 14 million Stable Diffusion prompts from real users, I reframe drawing as a linguistic-semantic act and examine Gen AI as a transformative tool for graphic communication in the post-information era.

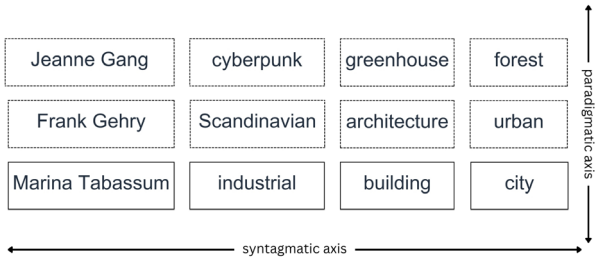
A semiotic view of drawing as writing

Through digital and computational tools, architects and designers enter the "techno-biological-cultural coevolution" [Ranzo 2022, pp. 40, 41], gaining the ability to produce prolific drawings, yet facing confusions to embed such abundance with deliberate meanings. Such a challenge might derive from the lack of "manual dexterity" which architects and designers rely on to express the "writing of the soul" –or their understandings and perspectives of the world they live in [Florio 2023, p. 22]. Put simply, the ease of generating instant depictions of thought can stifle thinking– architects and designers, confronted with vivid images of preliminary ideas, might lose the incentive to explore the unknown and stray from fixation [Boudier et al. 2023]. Yet 'abstract' drawing through digital and computational tools can still develop metaphors, analyze compositions, and negotiate relations between visual elements and thoughts [Amore 2023, pp. 50, 51; Dade-Robertson 2011]. Such drawing maintains a certain degree of abstraction (i.e., diagrams) and leaves room for imagination and reflection, thereby cultivating developed and in-depth meanings. Drawing through text-to-image Gen AI reaches the highest level of abstraction, enabling architects and designers to retrieve a wide array of visual elements – from units (point, line), categories (building, tree), to rules (symmetrical, imbalance) – via textual prompts and a vague anticipation of what the outcome will be [Mancini, Menconero 2023, pp. 57-68]. The inherent randomness of Gen AI [Tørresen 2021] also produces outcomes that loosely align with the textual prompts, leading to iterative rounds of prompt refinement and evolving interpretations in the generated act of drawing. Thus, understanding drawing through text-to-image generative AI is critical for architects and designers to harness a powerful tool that amplifies their thinking.

I propose that architects and designers can understand drawing through text-to-image Gen AI via the lens of Saussure's [Saussure 2011] *Semiotic Theory*, one of the most influential theories in linguistics literature. Saussure viewed language as a hierarchy of the 'signifier' (expression), the 'signified' (thought), and 'signs' - structured meanings of social interactions [Stawarska 2015]. For instance, the sound /tri:/ is the signifier of the signified concept of a plant with a trunk, branches, and leaves - forming the word 'tree', a sign with meaning. Yet the 'signifier' does not demonstrate the 'signified' in form, such that the sound /tri:/ does not embody a trunk with branches and leaves and the same 'signified' will have different 'signifiers' across cultures. While Saussure's *Semiotic Theory* published in 1916 [Carson et al. 2005] –with this paper citing its 2011 English translation– its values endure in

the post-information era with the notion of signs expand beyond words to include gestures and images [Chandler 2007; Stawarska 2015]. In the *Semiotic approaches to image-based research* the authors used this semiotic lens to explain how society consumes images, indicating that image production is the posterity of language – an abbreviation of writing [Carson et al. 2005].
In this paper, I applied Saussure's semiotic framework– using the syntagmatic (horizontal) and paradigmatic (vertical) axes [Chandler 2007; Saussure 2011]– to anatomize text-to-image Gen AI prompts. The first axis explains how multiple signifiers combine in sequence, while the second one highlights the range of alternative signifiers. Together, these relationships determine the value of a sign. From this standpoint, I inferred that when drawing with text-to-image Gen AI, architects and designers first translate their ideas into a series of signifiers along the syntagmatic axis. They then evaluate whether the generated images capture their intended meanings; and thus, refine their prompts by experimenting with different signifiers along the paradigmatic axis - either selecting alternatives that better align with their thinking or introducing new ones to inspire fresh interpretations of meanings (fig. 1).
With a background in design research, I am dedicated to exploring drawing as a form of writing through a semiotic lens in the context of architecture and interior design. My goal is to demonstrate that digital and computational tools are essential for architects and interior designers in the post-information era. By dissecting the anatomy of a prompt via its signifiers, I uncovered how textual cues generate a rich tapestry of visual elements, driving continuous cycles of prompt enhancement and meaning making.

Fig. 1. Syntagmatic and paradigmatic axes of text-to-image Gen AI prompts (diagram elaborated by the author based on Chandler 2007, p. 84).



A semiotic analysis of DiffusionDB

Among available datasets on text-to-image Gen AI prompts, DiffusionDB [Wang et al., 2022] is the most relevant for this paper. Stable Diffusion 100k [Turley 2023] and Kazimir [Kazimir 2023] have 100,000 and 50,000 prompts created by real users, respectively. DiffusionDB, using the same Gen AI model as Stable Diffusion 100k, contains 14 million prompts from real users. The diverse topics covered by the prompts enhance the likelihood of capturing text-to-image prompts appealing to architects and interior designers. Additionally, DiffusionDB is available under the CC0 1.0 License, making it a public domain resource for ethical research of secondary data.
To analyze this dataset, I used Visual Studio Code [Microsoft 2023] on a local computer equipped with a 13th Gen Intel(R) Core(TM) i9-13900K processor and an NVIDIA GeForce RTX 4090 graphic card. In this paper, I focused on the DiffusionDB 2M (part-000001) subset of 1,000 prompts. This subset is sufficiently large to gather enough prompts on architecture and interior design, yielding valuable insights while serving as a test bed for the semiotic-analysis protocol. The semiotic-analysis protocol combines qualitative thematic analysis –systematically examining textual data to identify, analyze, and report patterns or themes [Creswell, Clark 2017]– with exploratory data analysis using basic Python libraries like Pandas and NumPy [Foster 2020]. The overall steps included downloading the data subset, filtering text-to-image prompts related to architecture and interior design using keywords and identifying themes via word clouds and co-occurrence networks (fig. 2).

Fig. 2. Tokenizing and normalizing key terms (code snippet elaborated by the author).

```
from collections import defaultdict
# Create word association groups
architecture_associations = defaultdict(list)
interior_design_associations = defaultdict(list)
for tokens in architecture_tokens:
    if 'architecture' in tokens:
        architecture_associations['architecture'].extend(tokens)
    if 'building' in tokens:
        architecture_associations['building'].extend(tokens)
for tokens in interior_design_tokens:
    if 'style' in tokens:
        interior_design_associations['style'].extend(tokens)
    if 'light' in tokens:
        interior_design_associations['light'].extend(tokens)
```

I began by sampling frequent key terms from DiffusionDB 2M (part-000001) – such as 'architecture', 'building', 'design', and 'nature' for architecture, and 'concept', 'style', 'light', and 'artwork' for interior design. Leveraging *WordNet* library, I expanded these keywords with synonyms and related terms, then used custom NLTK text-processing algorithms to tokenize the prompts, structuring those linguistic patterns into a collection of prompts. I further extracted corresponding images of the filtered prompts using PIL library to verify that the 'signifiers' (textual descriptions) mirror the intended 'signifieds' (visual representations). After processing and normalizing key term frequencies, I employed Matplotlib library to visualize word clouds and co-occurrence networks. This approach captured semiotic insights of how dominant themes in textual descriptions (writing) in architecture and interior design defined visual representations (drawing), ultimately establishing a scalable protocol for larger datasets.

Anatomy of a prompt from DiffusionDB

The filtered collection comprised 246 architecture-related prompts (APs) and 276 interior design-related prompts (IDPs), validated through both random sampling and visual inspection. Based on Saussure's [Saussure 2011] *Semiotic Theory*, these findings illustrated the following elements: signifiers or the textual prompts that encoded design themes and intentions; signifieds or the AI-generated images that translated those prompts into visual outputs; signs or the interaction of (textual) prompts and (visual) outputs form a cohesive language of drawing that dictated by the dominance of key terms. In terms of architecture, among 246 APs, approximately 98% of the prompts contained themes like 'architecture' and 'design'. Between 71% and 72% of all APs were themes like 'building', 'nature', and 'archdaily'. Other prominent themes were 'city' – occupied 59%, 'art' and 'digital' also occurred in 48% of all APs. The word cloud and co-occurrence network for 246 APs (fig. 3) also showed a variety of stylistic or aesthetic influences via terms like 'cyberpunk', 'neon', and 'industrial'. Therefore, the APs were more than just simple texts; they were intentional compositions. The real users of Stable Diffusion –the text-to-image Gen AI in DiffusionDB– carefully selected 'signifiers', likely drawing from their existing architectural vocabulary, to create desirable 'signifieds'. A sample prompt for architecture is as follows: "a beautiful detailed painting of city abandoned industrial architecture building tomb nature urbex by jeanne gang, nightsky magic realism vaporwave laser otherworldly fisheye at fall sea universe synthwave landscape nature made of glass sunlight thermal vision infrared dramatic lighting, archdaily, wallpaper, highly detailed, trending on artstation" [Wang et al. 2023, p. 4].

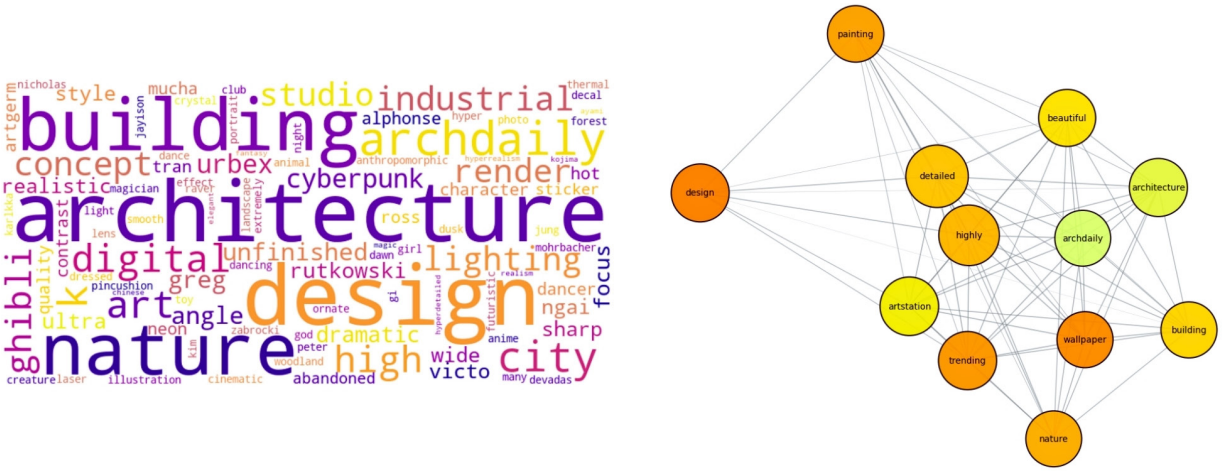


Fig. 3. Word cloud and co-occurrence network for architecture (left: diagram elaborated by the author; right: Deepak's diagram).

Such concurrent patterns indicated that the signs of (architectural) drawing via text-to-image Gen AI central around the common denominator of buildings –physical structures that embody the forms, philosophies, and social meanings, whether set in natural landscapes or urban cityscapes. Therefore, the APs reflect a broad yet accurate portrayal of architecture– the conceptual geometrical forms and the vantage point (landscape) surrounding them [Amore 2023; Álvarez 2024]. Interestingly, ArchDaily [1] –a popular architectural design outlet frequently cited in the APs– functioned as both a vocabulary of signifiers and an archive of signifieds. By hosting an extensive collection of high-quality architectural projects, ArchDaily has become synonymous with architecture, as illustrated in the APs. Many of the filtered prompts even specified names of renowned architects, like Frank Gehry [2], Jeanne Gang [3], and Marina Tabassum [4]. Thus, the real users in DiffusionDB 2M (part-000001) demonstrated their intent to have the Gen AI model emulate the quality of architectural projects posted on Archdaily and designed by established figures. Moreover, the generated images conveyed specific meanings that the real users aimed to express – a modern approach to architecture with elements of the industrial revolution [5], neon light, and high-rise structures against greenery in the landscape (fig. 4).

In terms of interior design, among 276 IDPs, approximately 100% of the prompts contained the theme 'style', followed by 'light' and 'concept' at 74% and 63%, respectively. Other prominent themes were 'art' and 'artstation' occupied 58% while 'detailed', 'intricate' and 'sharp' took up 47% of all IDPs. The word cloud and co-occurrence network for 276 IDPs (fig. 5) also revealed multiple stylistic or technical influences via terms like 'octane', 'shading', and 'render'. Again, the IDPs were deliberate considerations of key aspects in interior design, emphasizing the content and quality of visual presentations. In the same way, real users intentionally crafted signifiers –likely inspired by their current design vocabulary– to create compelling 'signifieds'. A sample prompt for interior design is as follows: "isometric cyberpunk diorama!!! in ocean, photorealistic rendering, raytraced reflections, cinematic lighting" [Wang et al. 2023, p. 5].
These concurrent patterns revealed that the 'signs' of (interior design) drawing via text-to-image Gen AI emphasize stylistic expressions or the underlying social conventions that distinguish styles and concepts from one another. In addition, the IDPs underscored a critical element of interior design: the ambient quality of light. Together, the filtered prompts offer a broad yet narrow view of interior design, focusing primarily on modifying spaces for aesthetic appeal. This perspective overlooks the equally important aspect of functional efficiency, as emphasized by Rengel [Rengel 2023].

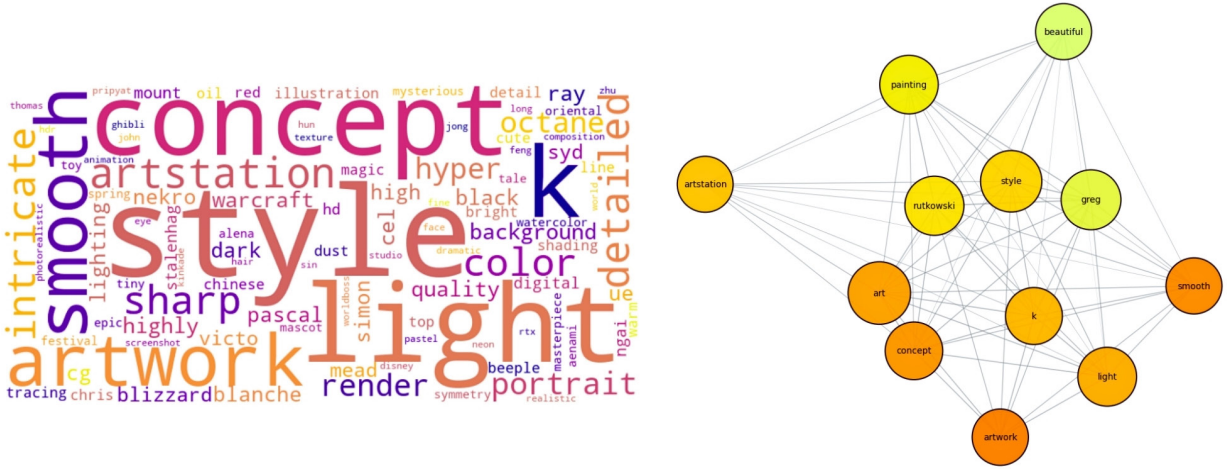


Fig. 4. Word cloud and co-occurrence network for interior design (left: diagram elaborated by the author; right: Deepak's diagram).

Fig. 5. Sample 'signifieds' for architecture (images retrieved from DiffusionDB 2M part-000001).

Fig. 6. Sample 'signifieds' for interior design (images retrieved from DiffusionDB 2M part-000001).

This observation was evident in the frequent references to Artstation [6] –a well-known platform for artistic projects– within the IDPs, signaling its role as both a vocabulary of signifiers and an archive of signifieds. However, while Artstation offers a myriad of design visualizations, its primary focus is on artistic, digital, and conceptual projects rather than interior design. Therefore, unlike APs, IDPs suggested that the real users might conflate art with interior design (fig. 6). The generated images amplified this mix by depicting dramatic indoor spaces that, although sometimes appearing run-down or abandoned, emphasize sophisticated lighting and artistic techniques reminiscent of oil painting and abstraction.

Overall, across 246 APs and 276 IDPs, I observed two permanent components of the text-to-image Gen AI prompts – 'building' and 'style', respectively. Both APs and IDPs shared the same anatomy with a fixed order along the syntagmatic axis, while offering a flexible range of alternatives along the paradigmatic axis (fig. 7). This observation reinforced my proposition on the continuous sequence of drafting and refining text-to-image Gen AI prompts, within the context of architecture and interior design. For instance, APs anchored by the 'signifier', 'building' while users experimented with alternatives –such as 'organic', 'unfinished', or 'industrial'– to convey their unique envisioned 'signifieds'. Likewise, IDPs based on the 'signifier', 'style', while variations such as 'symmetry', 'cyber', and '(dark/cinematic) light' were introduced to match the intention of individual users in the data subset. This semiotic framework highlights the linguistic underpinnings of Gen AI and its transformative role in bridging language, technology, and communicative graphics.

Semiotic deficits of vernacular architecture and cultural symbolism

Overall, text-to-image Gen AI functions as a nonverbal language, expressing layers of societal meanings. The generated visuals are continuously shaped by, and in turn, influence the written prompts that create them, demonstrating a reciprocal relationship between textual descriptions and visual representations. For instance, the vocabulary in APs and IDPs portrayed accurate but simplistic 'signifieds'

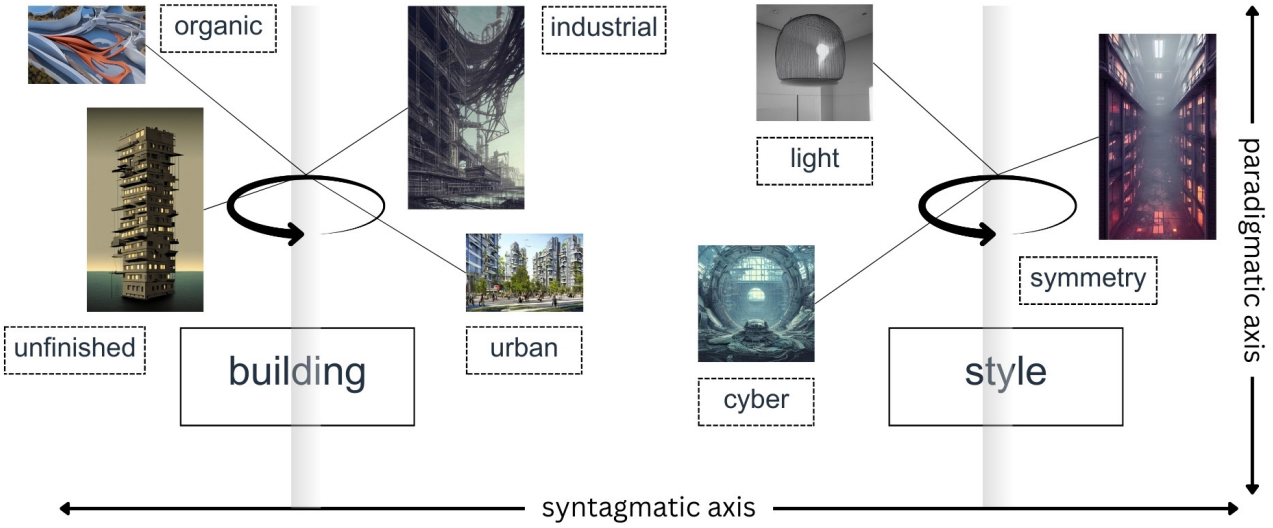


Fig. 7. Anatomy of text-to-image Gen AI prompts for architecture and interior design (diagram elaborated by the author).

of architecture and interior design via the prominent uses of Western-oriented 'signifiers'.
As shown in the semiotic analysis results, real users relied on Western traditions –borrowing from role models in architecture, design, and artistic styles like William Pereira [7], and Camille Pissarro [8]– to facilitate their prompt crafting process. : Furthermore, these role models spanned from William Morris [9] of the Arts and Crafts movement in 1868 to Neri Oxman [10] of the Material Ecology approach in 2006 onward. Yet, most 'signifiers' reflected Western histories, nationalities, and geographies, with non-Western 'signifiers' appearing in a few instances (12%). For example, Japanese architect Shigeru Ban [11], Ghanaian sculptor El Anatsui [12], plus references to locations like Tokyo and Kenya.
While Saussure's [Saussure 2011] Semiotic Theory primarily focuses on the arbitrary relationship between 'signifiers' and 'signifieds', with the former bearing no visual cues of the latter, the vocabulary across APs and IDPs reveals another dimension of this relationship – the quality of the 'signifiers'. Here, I observed 'semiotic deficits' in vernacular architecture and cultural symbolism within the signifiers, thus biasing the 'signifieds'. This observation is inherent to Gen AI but not a deliberate intent. Rather, it is more attributable to technical and practical constraints, particularly the accessibility and composition of training datasets used in Gen AI models like Stable Diffusion. These models often rely on web-sourced data, which tends to disproportionately document Western architecture and interior design [Häusler et al. 2023].
This inherent imbalance in data availability and curation tends to underrepresent vernacular architecture and cultural symbolism, inadvertently amplifying Western role models. Moreover, vernacular architecture embodies local narratives and cultural symbols that often require contextually nuanced understandings, posing significant challenges for representation through algorithmic processing. As Dilaveroglu [Dilaveroglu 2024] argued, biases are intrinsic to cultural heritage collections, and their digital representations further risk simplifying complex cultural symbolism.
While users may attempt to diversify outputs the results still depend on the model's dataset. As such, even prompts featuring diverse figures can produce outcomes shaped by Western-oriented training data – or the limited vault of 'signifieds' within the Gen AI model, reinforcing representational imbalances. Addressing this requires deliberate expansion and curation of training data to include broader architectural traditions and cultural contexts. While this raises important cultural, methodological, and technical questions about achieving more inclusive generative representations, such concerns lie beyond the immediate scope of this study. Above all, my aim is to demonstrate that Gen AI is not a disruption but rather another drawing medium, as evidenced by its underlying linguistic-semantic nature.

Conclusion

The rise of digital and computational tools necessitates a recontextualization of Massironi's [Massironi 2002] notion of drawing as a language by architects and interior designers. While concerns about the diminishing brain-to-hand interactions in design thinking are valid [Boudier et al., 2023; Florio 2023], it is crucial to understand that digital and computational tools are, in fact, just another set of conventions that shape current societal meanings [Culkin 1967; Dade-Robertson 2011; Lim, Jung 2018]. The purpose of this paper is to draw evidence from a publicly available subset of text-to-image Gen AI –DiffusionDB 2M (part-000001)– to show architects and interior designers in the post-information era how the relationship between drawing and writing evolves with new medium. Henceforth, rather than opposing these technological advancements, we might instead, embrace them.
The implications of my findings are two-fold. First, architects should utilize text-to-image Gen AI as a tool for translating their architectural vocabularies into precise visual outputs – using more specialized signifiers rather than general key terms like 'building' and 'design' to ensure that the generated images align with both conceptual and disciplinary nuances. Second, interior designers might experiment with prompt variations centered on both stylistic expression and functional efficiency, allowing them to generate images that highlight the aesthetics essential to interior design while maintaining functionality.
One consideration regarding the findings is the uncertainty about how many real users who generated the prompts in DiffusionDB 2M (part-000001) were architects and interior designers. While the language and thematic patterns observed in the dataset strongly align with professional design vocabularies, the absence of verified user credentials makes it difficult to confirm whether these prompts truly reflect the insights of trained professionals or are largely the work of enthusiasts.

Despite this consideration on the professional backgrounds of real users in DiffusionDB 2M (part-000001), my graduate research assistant in Data Science independently re-ran and re-inspected the original code on the same dataset, and the results remained consistent. This reproducibility suggests that the thematic patterns and semiotic structures observed in the prompts are robust, regardless of potential uncertainties about user credentials. The consistency of these findings reinforces the analysis reliability and indicates that the core dynamics of 'signifiers' and 'signifieds' in text-to-image Gen AI remain stable. Moving forward, I will scale the semiotic protocol in this paper to larger datasets to better validate the anatomy of text-to-image Gen AI prompts established in this paper. As using identifiable data raise concerns on research ethic and implications on users of Gen AI models, working with a large dataset can strengthen the findings' generalizability and deepen understandings of how drawing –as a language– emerges from the interplay of textual prompts and AI-generated visuals in the fields of architecture and interior design.

Acknowledgements

I thank Naga Deepak Pagadala, my graduate research assistant, for re-testing the original code on analyzing DiffusionDB 2M (part-000001) and enhancing the data visualizations. ChatGPT o3-mini was used for grammar checks and wording refinements.

Notes

[1] www.archdaily.com (accessed 6 April 2025).

[2] https://architectfrankgehry.art/ (accessed 6 April 2025).

[3] https://studiogang.com/ (accessed 6 April 2025).

[4] https://marinatabassumarchitects.com/ (accessed 6 April 2025).

[5] Dale, S. (2021). Shift Change: Scenes from a Post-Industrial Revolution. Toronto: Between the Lines. https://ebookcentral.proquest.com/lib/iub-ebooks/detail.action?docID=6732758 (accessed 6 April 2025).

[6] www.artstation.com (accessed 6 April 2025).

[7] Goodwin, D. (n.d.). Spotlight: William Pereira. https://www.archdaily.com/623739/spotlight-william-pereira (accessed 6 April 2025).

[8] https://camillepissarro.org/ (accessed 6 April 2025).

[9] https://williammorrissociety.org/about-william-morris/ (accessed 6 April 2025).

[10] https://oxman.com/projects (accessed 6 April 2025).

[11] https://shigerubanarchitects.com/ (accessed 6 April 2025).

[12] https://elanatsui.art/ (accessed 6 April 2025).

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Reference List

Álvarez, D. (2024). Representation and Design in Historic Gardens. In *diségno*, No. 15, pp. 31-43. https://doi.org/10.26375/disegno.15.2024.4.

Amore, M. P. (2023). 'Abstract Machine'. Diagrams in Project Narrative. In *diségno*, No. 13, 43-56. https://doi.org/10.26375/disegno.13.2023.7.

Boudier, J., Sukhov, A., Netz, J., Le Masson, P., Weil, B. (2023). Idea evaluation as a design process: understanding how experts develop ideas and manage fixations. In *Design Science*, Vol. No 9, e9. https://doi.org/10.1017/dsj.2023.7.

Carson, T., Pearson, M., Johnston, I., Mangat, J., Tupper, J., & Warburton, T. (2005). Semiotic approaches to image-based research. In B. Somekh, C. Lewin (Eds.). *Research methods in the social sciences*, pp. 169-171. London: SAGE Publications. <https://research.ebsco.com/linkprocessor/plink?id=-2de03f07-01a3-3d04-8d96-31baf5022494> (accessed 6 April 2025).

Chandler, D. (2007). *Semiotics: The basics* (2nd ed.). London: Routledge.

Creswell, J. W., Clark, V. L. P. (2017). *Designing and conducting mixed methods research* (3rd ed.). London: SAGE Publications.

Culkin, J. M. (1967). A schoolman's guide to Marshall McLuhan. In *The Saturday Review*, March 18, 1967, pp. 51-53; 70-72: <https://www.unz.com/print/SaturdayRev-1967mar18-00051> (accessed 6 April 2025).

Dade-Robertson, M. (2011). *The architecture of information: architecture, interaction design and the patterning of digital information*. London: Routledge. https://doi.org/10.4324/9780203828380.

Dilaveroglu, B. (2024). The architecture of visual narrative: Can text-to-image algorithms enhance the power of stylistic narrative for architecture. In *International Journal of Architectural Computing*, 22(3), pp. 432-457. https://doi.org/10.1177/14780771241234449.

Florio, R. (2023). The Acts of Drawing: 'procedere' and 'cedere-pro'. In *diségno*, No. 13, pp. 21-30. https://doi.org/10.26375/disegno.13.2023.5.

Foster, J. (2020). *Python for beginners: Learn the fundamentals of computer programming*. Elluminet Press. <https://research.ebsco.com/linkprocessor/plink?id=80c0bbbe-da8e-3f23-a77c-030f4135bd03> (accessed 6 April 2025).

Häusler, C., Bansal, A., Meng, Z., Peysakhovich, A., Kim, B. (2023). Stable bias: Evaluating societal representations in diffusion models. In *Proceedings of the 37th Conference on Neural Information Processing Systems* (NeurIPS 2023): <https://arxiv.org/abs/2305.15391> (accessed 6 April 2025).

Kazimir, A. (2023). *Kazimir-ai/text-to-image-prompts*. https://huggingface.co/datasets/Kazimir-ai/text-to-image-prompts (accessed 6 April 2025).

Lim, J.-S., Jung, E.-C. (2018, June 25-28). A study on the roles of designers co-evolving with tools. In C. Storni, K. Leahy, M. McMahon, P. Lloyd, E. Bohemia (Eds.). *Design as a catalyst for change - DRS International Conference 2018, 25-28 June*, Limerick, Ireland. https://doi.org/10.21606/drs.2018.533.

Mancini, M. F., Menconero, S. (2023). AI-aided Design? Text-to-image Processes for Architectural Design. In *diségno*, No. 13, pp. 57-70. https://doi.org/10.26375/disegno.13.2023.8.

Massironi, M. (2002). The psychology of graphic images: Seeing, drawing, communicating (N. Bruno, Trans.). L. Erlbaum. https://research.ebsco.com/linkprocessor/plink?id=7979c400-6211-3875-89ee-71769e9cd842

Melis, A. (2023). Architecture through Drawing. In *diségno*, No. 13, pp. 33-42. https://doi.org/10.26375/disegno.13.2023.6.

Microsoft. (2023). Visual Studio Code. https://code.visualstudio.com/ (accessed 6 April 2025).

Papidou, T. (2014). Double writing in architectural design: A phenomenological-semiotic approach. In E. Zantides (Ed.), *Semiotics and visual communication: Concepts and practices*, pp. 23-32. Cambridge: Cambridge Scholars Publishing.

Palestini, C. (2022). Research and Archives of Architecture. The Roles and Disseminations of Drawing. In *diségno*, No. 10, pp. 7-17. https://doi.org/10.26375/disegno.10.2022.2.

Ranzo, P. (2022). From Digital to Postdigital: the Dialogical Relationship between Drawing and Design. In ***diségno***, No. 11, pp. 37-42. https://doi.org/10.26375/disegno.11.2022.6.

Rengel, R. J. (2023). The interior plan: Concepts and exercises (3rd ed.). London: Bloomsbury Publishing: <https://www.fairchildbooksinteriordesign.com/encyclopedia?docid=b-9781501369681> (accessed 6 April 2025).

Saussure, F. de. (2011). Course in general linguistics (W. Baskin, Trans.). NewYork: Columbia University Press. <https://research.ebsco.com/linkprocessor/plink?id=09ccffd9-4b10-304b-a1cb-38dfb8304e60> (accessed 6 April 2025).

Soddu, C. (2002). New Naturality: A Generative Approach to Art and Design. In *Leonardo*, No. 35(3), pp. 291-294. https://doi.org/10.1162/002409402760105299.

Stawarska, B. (2015). *Saussure's philosophy of language as phenomenology: Undoing the doctrine of the course in general linguistics*. Oxford: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780190213022.001.0001.

Tørresen, J. (2021). Undertaking Research with Humans within Artificial Intelligence and Robotics: Multimodal Elderly Care Systems. In *Technology|Architecture + Design*, No. 5(2), pp. 141-145. https://doi.org/10.1080/24751448.2021.1967052.

Trimarchi, M. (2022). The Uselessness of Drawing. In *diségno*, No. 11, pp. 23-34. https://doi.org/10.26375/disegno.11.2022.5.

Turley, S. (2023). *Stable Diffusion 100k Custom Prompts and Images*. https://www.kaggle.com/datasets/rturley/stable-diffusion-100k-custom-prompts-and-images (accessed 6 April 2025).

Wang, Z. J., Montoya, E., Munechika, D., Yang, H., Hoover, B., Chau, D. H. (2022). DiffusionDB: A large-scale prompt gallery dataset for text-to-image generative models. arXiv:2210.14896 [cs]. <https://arxiv.org/abs/2210.14896> (accessed 6 April 2025).