Journal of Architectural/Planning Research and Studies (JARS) Vol.23(2).2026 https://doi.org/10.56261/jars.v23.278139

A Critical Friend: Brief Reflections on the Silicon Architect and its Data-centric Mindset

Beau B Beza
School of Architecture and Built Environment, Deakin University, Geelong, Australia
Corresponding author email: beau.beza@deakin.edu.au
Received 6/4/2025 Revised 5/5/2025 Accepted 30/9/2025

Abstract

I am at academic odds or should I say mindset odds with Kemkomnerd &Tirapas' (2025) argument that architecture is transforming towards a data-centric mindset and its influence on the design process. However, before I go into a critical review of their subject matter, I need to position myself within the built environment design world so that the scholar / student / practitioner, may gain an understanding of the lens through which I am conducting this review. I come from an academic background of Landscape Architecture and Urban Planning, with emphasis on Aesthetics / Community Development. This background is derived from studying and practicing in country settings such as the USA and Australia, and my aesthetic / community development focus comes from co-producing projects with a range of people and students in a variety of Global North and Global South settings (e.g. Colombia, Mexico, Nepal). Critical insight into the Silicon Architect stems from my research and studio work developing a Sensory Urbanism prototype (see Globa et al., 2022; Beza & Globa, 2023). Additionally, in my research / teaching I normally do not refer to professionals within the built environment as architect, urban planner, engineer, and so on. Rather, I believe those that influence space(s) through, for example, the use of physical, virtual and/or monetary means are designers. Hence, in this review I will use the term 'designer' to refer to built environment professionals / academics rather than apply the siloing term Architect or Architecture. Interestingly, when I read the piece by Kemkomnerd & Tirapas (2025) I immediately was taken back to and reflected on a similar 'mindset' discussion that took place in the 1960s where designers dealt with data-driven and computer supported inquiry. That discussion took place as a conference titled Boston Architectural Center (1964, p. xi) and focused on two dimensions of the then emerging use of the computer in design, these were "[...] to provide information about the current use of the computer in architecture and related fields, and [...] to explore the possible relationships of computer use to the creative processes of architectural design". So, I ask myself what is fundamentally different to essentially two similar design / data use transition arguments? Off the top of my head, there clearly are differences between an emerging 1960s potential use argument of computers versus a now imbedded use of the digital and artificial worlds in nearly every aspect of contemporary 2025 life. Additionally, the physical and memory size, processing speed, usability, program availability and applicability, transportability, affordability and aesthetic differences, to suggest a few, are 'yes' very different. But the computer's potential use (i.e. mind-set transition) and applicability in design (i.e. data-centric approaches) query remain essentially the same. In the following pages, I address this quandary from a more conceptual and scholarly point of view rather than a line by line discussion of the authors' ideas.

Keywords

Aesthetics, Architecture; Data-Centric; Design process; Design research; Silicon Architect

1. The Foster + Partners Case Study

A discussion revolving around data sets commences the authors' argument and appears to be intended to demonstrate depth in the use of reference material from which aesthetic related outputs potentially are synthesized. Their argument, and in their defense, is restricted to a computer derivation of data and use; which does provide focus for their publication. However, in the world of the built environment and when utilizing an approach for working on a project, designers should regard data more widely; understanding it also to encompass a range of physical and observational material from which to base design decisions.

Data takes shape in many forms and designers always have accommodated an ever-increasing amount of available material that, sometimes, needs to be gleaned from a range of sources, and then interpreted and translated into knowledge when creating new aesthetic outputs. Local government planning documents and guidelines, environmental and site considerations, and the elements that make up a client's brief and a community's inputs to project stages, to name a few, all are types of data that may need to be accounted for and utilized by the designer. Being on site and gathering observational data regarding the space, and the immediate and surrounding environment, for instance, also can provide data for use by the designer.

Moving beyond this simple critique of what 'data' may be, the authors of the Silicon Architect highlight the use of data and their interpretation through presentation of three case studies (of which I use two in this review). Of the case studies, the Foster + Partners work appears to be the most compelling and supportive of Kemkomnerd & Tirapas' (2025) argument. That is, this firm's designers use data as a means to address a range of environmental concerns (e.g. temperature) through a highly specialized computational design process that, with great efficiency, leads "[...] towards the most appropriate architectural solution" (Kemkomnerd & Tirapas, 2025 p. 11). What I glean from the authors' discussion of this example is that data are used to address site specific concerns and, in doing so, a new aesthetic is created. Importantly, the agency of the designer is retained in this creation of an aesthetic output. This agency dimension is an important consideration when reflecting on the data-centric mindset because this example suggests that there are a range of collaborative actors in a project and their respective knowledge sets are needed and involved in the design process.

Additionally, the process of design utilized in this case study example revolves around what may be referred to as a 'research for design' approach (Bærenholdt et al., 2010), which I interpret as generally resulting in products. My immediate concern here is that these 'aesthetic products' may be used as precedent, by artificial intelligence as well as the student and/or professional, for application in a context other than what the aesthetic originally was created to address. Hence, the 'rules' used to create the aesthetic are unknown to the artificial / human actor and the aesthetic itself simply may be used as part of a 'satisficing' approach (Simon, 2019), allowing one to inaccurately employ it as a creative benchmark.

2. In Search of the Unseen (Case Study)

In terms of the least compelling case study and subsequent argument used in the Silicon Architect, this revolves around the unseen aesthetic and its focus on technology allowing designers to go beyond the limits of their own imagination (Andrasek, 2019). But before I provide comment on that argument a few points first

need to be made. This second case study example revolves around what Bærenholdt et al. (2010, p. 4) frame as a 'research through design' or 'design through research' approach, and may be used to enable one's addressing of "[...] contemporary design challenges and opportunities [...]". Applying this approach can result in both product and process and, importantly, is a very good illustration reflecting Bærenholdt et al.'s (2010) argument calling attention to the hybrid nature of design research and Cross (2006, p. 2) early positioning of design education as having its own set of cultural values (i.e. "[...] practicality, ingenuity, empathy, and a concern for 'appropriateness'"); which he suggests are different to scientific and humanities focused values.

Where I express concern in the use of the unseen case study is in Andrasek's (2019, p. 114) strong lean of searching for new built environment aesthetics of "[...] awe and wonder [...]" through the use of technology, irrespective of site context and Kemkomnerd & Tirapas (2025, p. 12) acceptance of technology's ability to create (aesthetic) products that "[...] overcome [our] own imaginative limits and [to] gain new disciplinary insights". Anecdotally, from my reading of their work perhaps further critical analysis may be undertaken as I do not understand this lack of imagination argument. I simply look to the design works created and realized by Le Corbusier, who is discussed in the Silicon Architect as master builder, and who created new aesthetic works influencing countless designers globally. The imagination involved in his 'awe and wonder' aesthetic creations revolved around a bricolage of data, knowledge, and technology. At the time, he pushed imaginative and technological boundaries, referring to the data driven mindset of the engineer as inspiration (Le Corbusier, 1985). Quite frankly, Le Corbusier was a designer that understood how to design and build, with purpose and making an aesthetic statement clearly in mind. My point being, designers of today should still understand how to design / build regardless of the persistent increase in "[...] sophistication of architectural projects [...]" (Kemkomnerd & Tirapas, 2025, p. 5), which this sophistication, or in my interpretation, complexity of issues to address "[...] compelled [the master builder (i.e. architect)] to separate into two distinct domains [...]" (p. 5).

Unfortunately, this design specialization appears not to have served the built environment professions well and may have undermined the agency originally afforded the designer. For example, Simon (2019, p. 111) explains that after WWII professional "[e]ngineering schools [shifted their curricula and] gradually became schools of physics and mathematics [...]". In essence, "[...] they hankered after academic respectability" and installed "[...] subject matter that is intellectually tough, analytic, formalizable, and teachable" (Simon, 2019, p. 112), which was in contrast to "[...] what we knew about design and about the artificial sciences [being considered] intellectually soft, intuitive, informal, and cook-booky" (Simon, 2019, p. 112). Additionally and anecdotally, I remember being in Australian university built environment schools as both student and/or academic (from 1996-present) where during our 'open day' and hearing of/or presenting the virtues of pursuing a design education to secondary school and mature aged students I was encouraged to highlight that the use of math and science is relegated to an absolute minimum level in a program. The inference being a focus on learning through creativity and artistic exploration (i.e. design), and an undermining of the structural and engineering curriculum components of a program. The result being, built environment graduands and graduates of these professional courses lacking an understanding in how their design(s) may be detailed and technically built. However, with a focus on the use of the computer now embedded in university programs an early view by Simon (2019) suggests that design curriculum is being added back into course learning, such as in engineering schools. I understand this more as being different to the graphic illustration, documentation, and varied managerial dimensions afforded when employing the computer. Rather, use of the computer in design curricula may include "[...] the efficient computational techniques [...] available for actually finding optimum courses of

action in real situations, or reasonable approximations to real situations" (Simon, 2019, p. 119), which supports Kemkomnerd & Tirapas (2025) 'new design process' argument and begins to reinstate the agency of the designer. In terms of the latter, this is because, as illustrated in the Foster + Partners case study, the knowledge set of the designer is utilized to create outputs.

3. Reflection

My concern with the focus on the computer, and not a reintroduction of design into curriculum, is that in emerging nations there are still university programs where the use of the computer and its computational dimensions are not used by design students (or professionals) to the extent they are in the West. Although, even today in Western nations there are professionals who minimally or do not use the computer in their design work but still produce well considered and great aesthetic outputs. Hence, in a very simplistic sense, through Kemkomnerd & Tirapas (2025) data-centric mindset argument I see another canyon emerging in the continuing divide between nations, where the apparatus used to create a new aesthetic (i.e. the computer and accompanying design process) is available to some designers and not others.

Furthermore, this new aesthetic, described through Andrasek's (2019) work, concerns me. This is not because something, potentially, new is being created through artificial means but rather it is the creation and installation of an aesthetic independent of site and cultural contexts. For example, Dewey (1981a) in his organized piece Experience as Aesthetic, and in a contemporary / computer focused interpretation of his arguments, points to the genius loci being lost in works when they are created independent to the place and culture they are to be experienced by. Space (i.e. the site), in this regard, may be seen by the designer as simply a void to be filled and the respective creative work intended to be an 'aesthetic specimen', which may do more to "[...] satisfy the appetite" (Dewey, 1981b, p. 544) of the designer rather than complement the spirit of the site and, importantly, support the people it is intended.

Additionally, this new (unseen) aesthetic, created through a new data-centric design process appears ill framed for the designer to gain some sense of appreciation. That is, terms such as "[...] awe-inspiring [...]" (Andrasek, 2019, p. 115) or "[...] the future of beauty [...]" (Andrasek, 2019, p. 114) are used with little aesthetic explanation and intended to illicit an emotive response from the reader. Hence, the use of that aesthetic argument suggests one is simply meant to agree. Kemkomnerd & Tirapas (2025) appear to embrace Andrasek's new aesthetic argument that is meant to be derived from an approach where the "[...] new mindset, [...] is set to re-direct the architectural design process in ways that may help their discipline escape the limits of its own paradigmatic imagination [...]" (Kemkomnerd & Tirapas, 2025, p. 17). However, moving forward I suggest that before designers embrace this new aesthetic argument a framing of what this may entail through use of identified aesthetic dimensions (e.g. beauty, the sublime, ugliness, the profane, empowerment, subjugation) need to be presented or, better, contrasted with that produced through use of the human imagination. For example, aesthetic works by Adorno (2010), Eagleton (1990), and Sartre (2010; 2008) may help provide ingredients to a philosophical argument that can be used to underpin claims (or counterclaims) of a new aesthetic created through the data-centric mindset. While analogies and/or dissimilarities in the aesthetic created in the 'real and natural' world vs the artificial may be derived from Bacon (1932), Burke (1990), Kant (2000) and/or Eliade (1987). Hence, before one subscribes to this new aesthetic and its emergence from computational means a robust framing of what it entails is needed.

Conclusion

The ideas presented in the piece by Kemkomnerd & Tirapas (2025) provide interesting insight into the Silicon Architect and contribute to an ongoing evolution of the process used by designers to create outputs. My consideration of 'what is new' in their argument, however, still remains and I would urge caution when or if making claims about a new data-centric mindset that allows one to move beyond the limits of human imagination.

Author Contributions

Piece sole authored by Author.

References

Adorno, T. W. (2010). Aesthetic theory. (G. Adorno & R. Tiedemann (Eds.)). (Newly translated, edited, and with a translator's introduction by Robert Hullot-Kentor). Continuum International Publishing Group.

Andrasek, A. (2019). In search of the unseen: Towards superhuman intuition. *Architectural Design, 89*(5), 112-119. https://doi.org/10.1002/ad.2487

Boston Architectural Center. (1964). *Architecture and the computer:* Proceedings, first Boston Architectural Center Conference (December 5, 1964. Boston, Massachusetts). https://www.gregbryant.com/gatemaker/1964ArchitectureAndTheComputerBoston.pdf

Bacon, F. (1932). *Essays*. J. M. Dent & Sons.

Bærenholdt, J. O., Büscher, M., Scheuer, J. D., & Simonsen, J. (2010). Perspectives on design research. In J. Simonsen, J. O. Bærenholdt, M. Büscher & J. D. Scheuer (Eds.)*, Design research: Synergies from interdisciplinary perspectives* (pp. 1-15). Routledge.

Beza, B., & Globa, A. (2023). Virtual multisensory design. *Urban Design, 165*, 30-32. https://www.udg.org.uk/publications/journal/urban-design-165-winter-2023

Burke, E. (1990). *A philosophical enquiry into the origin of our ideas of the sublime and beautiful.* Oxford University Press.

Cross, N. (2006). *Designerly ways of knowing.* Springer.

Dewey, J. (1981a). The live creature. In J. J. McDermott (Ed.), *The philosophy of John Dewey* (v. 2, pp. 525-540). University of Chicago Press.

Dewey, J. (1981b). The live creature and "etherial things". In J. J. McDermott (Ed.), *The philosophy of John Dewey* (v. 2, pp. 541-554). University of Chicago Press.

Eagleton, T. (1990)*. The ideology of the aesthetic.* Blackwell.

Eliade, M. (1987). *The sacred and the profane: The nature of religion*. Harcourt

Globa, A., Beza, B. B., & Wang, R. (2022). Towards multi-sensory design: Placemaking through immersive environments - evaluation of the approach. *Expert Systems with Applications, 204*, 117614. https://doi.org/10.1016/j.eswa.2022.117614

Kant, I. (2000). *The critique of judgement*. Prometheus.

Kemkomnerd, W. & Tirapas, C. (2025). The silicon architect: Transformation towards a data-centric mindset. *Journal of Architectural/Planning Research and Studies (JARS), 22*(1), 269892. https://doi.org/10.56261/jars.v22.269892

Le Corbusier. (1985). *Towards a new architecture*. Holt, Rinehart and Winston.

Sartre, J-P. (2010). *The imaginary: A phenomenological psychology of the imagination.* Routledge

Sartre, J-P. (2008). *Being and nothingness: An essay on phenomenological ontology.* Routledge.

Simon, H. A. (2019). *The sciences of the artificial.* MIT Press.