Open Media and Experimental Intelligence

Lidia Gasperoni

What is the human relationship to the environment that is co-designed by AI? What is made available through this technology? What remains unavailable or inaccessible? Who can make content available, and how, and who can access it? Today, AI and, more recently, Generative AI, appear to be transforming processes of image and text production in architectural design. Without reducing AI to a mere tool used by designers, this essay assigns this critical function of its use to the experimentation through which the tool is conceived, adapted, and hybridized by designers—later defined in their role as "experimental users." From this perspective, the present essay is a dialogical invitation to inquire into the role of experimental practices and uses of AI as a humanistic task.

Such a "humanistic operation" means, on the one hand, defining media practices as the core of design research by emphasizing their role as "mediators"[1] and their responsivity to the design of just environments. On the other hand, it means resituating human beings in their abilities and limitations to experience the world. In order to respond to the need of designing more just environments, it is vital to diversify and extend the realm of semantic layers that spatial design is able to process and creatively transform. The transdisciplinary discourse around the Anthropocene and related criticisms, such as the Chthulucene, Capitalocene, and Post-Anthropocene, challenges the constitution of conventional representations in which the world appears to us as a homogeneous reality that lends itself to categorization.[2] This discourse—which has a specific ground-breaking force to reactivate a variety of fundamental turns (phenomenological, constructivist, spatial, ecological,

1 See Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Harvard University Press, 1993).

2 For an introduction, see Eva Horn and Hannes Bergthaller, *The Anthropocene: Key Issues for the Humanities* (Routledge, 2019), and Marianne Krogh, *Connectedness: An Incomplete Encyclopedia of the Anthropocene* (Strandberg, 2020).

etc.)—reveals the urgency inherent to the fullness of human experience, to discover and rediscover alternative ways to explore and make visible a more-than-human relationality as a plural field of practices of "worlding."[3]

This field reinforces the regulative, critical, and countering function of experimental practices in the use of specific media and, in this specific case, AI. The assertion of the "regulative function" of experimental practices is driven by their capacity and responsivity to expand and disrupt the conventional use of media and transform their representational capacity by extending the realm of semantic layers. To "open up media" is therefore a critical disposition capable of extending and transforming signification through specific media that generate alternative ways of designing and projecting both existing and future building stock. The practice of experimentation enables the re-assemblage and reflection of contextual knowledges in the medium itself. This is a "performative" use of the medium capable of destabilizing and transforming representational practices.

With this in mind, the essay integrates the experimental use of AI in a broader reflection on media practices in architectural design. The field of application is referred to as spatial design, but it fits into the broader field of media studies and media pedagogy. After a brief critical inquiry into the medium intended as a black box, I will define the performative function of media and more specifically AI for spatial design. Three steps are needed for this aim: first, a deep understanding of a media practice as a specific gestaltic relation between sensory modalities and techniques; second, a discussion of the experimental user able to "reach" and operate in the medium; and, in conclusion, a paradigm shift from content-related meaning to meaning as relational space.

Black Box: Legacy and Reductionism

AI is compared to human intelligence using the black box analogy. This is based on the definition of a functional mechanism of establishing connections shared with neural processes. This leads, in pursuit of the idea of strong AI, to the development of a conscious machine able to generate autonomous connections. This comparison—at the basis of connectivism—can be traced

3 Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Duke University Press, 2016), 1.

back to the association of the computational machine's functionality with that of the neuronal machine. Their complexity appears both enigmatic and comparable to a black box. In this regard, the black box can be regarded as a concealed layer between the input and output stages. This epistemological and cognitivist perspective embeds specific assumptions. First, the legacy of the comparison between neuronal and technical mechanisms that facilitate its functioning, associating the human body with the machine's ability to imitate it and acquire its cognitive skills cumulatively. This association is evident in the complexity of computational processes that allow data of varied natures to be related, facilitating their integration and manipulation. This complexity results in a perpetual exchange and convergence of data, and ultimately in Generative AI producing copies of copies that could reach the inventiveness and situatedness of analogue craftsmanship.[4]

The complexity of this process leads, second, to a reductive definition of signification as "content generation," believing that computational processes make the generation process itself, and thus the explanations related to the output produced more real, objective, and scientific.[5] In certain instances, this is regarded as an externalization process of objectivation, in contradistinction to the "intuitive" process, which is subjective and tacit.

The complexity of connections and the objectivation of meaning constitute the basis of a reductionist perspective of technical implementation and determinism based on the idea of a black box and autonomy of the representation, which can be produced and downloaded. Determinism ignores on the one hand a philosophical analysis of how intuitive and imaginative processes achieve experience through sensory modalities and media practices that 'form' perceptions and their interpretations. On the other hand, it undermines the countering function of experimentation and critical thinking for establishing a space of relationality to generate signification. Mario Carpo asserts that "computers don't need theories to crunch numbers, but we need theories to use computers."[6] Along these lines, we could argue that philosophy is a further layer that approaches and diverges from technology by exploring a relational field in which media are performative and bring technology to matter. There is thus

4 This is a subject explored in Mario Carpo, *Beyond Digital: Design and Automation at the End of Modernity* (MIT Press, 2023).

5 See Neil Leach, *Architecture in the Age of Artificial Intelligence: An introduction to AI for architects* (Bloomsbury, 2022), 108.

6 Mario Carpo, "The Alternative Science of Computation," *E-flux Architecture* 6 (2017): 5.

a surplus to the analysis of perception and cognition through the analysis of neural and embodied mechanisms.

Media of Making Sensible: If We Open Our Brains, We Do Not Find Images

Experience cannot be exclusively explained by neural connections and sensory perception. This essay aims to overcome a reductionist comparison between the human brain and the machine, which defines a specific field of mediation as an embodied practice of sensing exceeding the physical black box. Any programmer or user has to identify a specific medium in which to code and use an application. If you ask an application designed to generate text to "generate an image," it will respond: "I am not programmed to generate an image." Similarly, Midjourney can generate an image from a text. This suggests that the brain or the programmed machine can be regarded as a "black box," yet the manner in which we comprehend its operation cannot evade scrutiny of the media dimension that constitutes the media boundaries of the "black box" in both theory and practice.

In this perspective, due to the fact that humans have a limited set of senses and a more-than-human ability to combine them, it is no coincidence that researchers and designers are increasingly committed to developing multimodal practices and uses of AI. The human ability to connect, which is significantly slower than that of some species or machines, remains very elaborate in its capacity to use sensory modalities through specific media practices—such as languages, haptic and proprioceptive movements, and specific figurative schemata, such as painting, drawings, diagrams, geometric figures. And to translate this complexity to the machine does not mean to imitate "our" brain and body, but rather to explore the connection between sensory modalities and media practices by designing the jumps and gaps of textual and figurative perceptions.

These specific media practices enable us to articulate meaning at a sensory level between more pictorial and more auditive languages, and precisely due their gestaltic plasticity they allow spaces of translation. The "opening up" of the brain certainly reveals a series of physiological conditions that, when connected with specific sensory modalities, enable perception and the development of cognitive capacities. Technological devices make this connection possible outside of the body and constitute an extension and, in some specific

cases, a prosthesis of it. Although media practices depend on technical components, they are the result of experiential, dynamic, and mutable processes that articulate the crystallization of cultural, empirical practices between sensory modalities and technologies. Media practices are both embodied and externalized in technical apparatuses at the intersection of analogue and digital.

However, the physiological, sensory, and technological conditions do not exhaust the human condition of constituting knowledge through media practices. In this perspective, the domain of mediality cannot be reduced to physiological and mathematical analyses, it transcends both. This is not to suggest that media define an a priori or pre-established semantics; rather, it is a discussion of the gestaltic capacity of human perception, which offers a field of experimentation in which sensory experience is related to a specific field of technological practices.

In this vein, Western philosophy in different epochs has paid particular attention to specific sensory modalities in order to understand the gestaltic function of the senses. They are not only receptive sensors but have the function of shaping and forming sensory data through schemes. The image is a space of mediation that can be seen and generated through various practices. A three-dimensional image, for instance, is a medium with a proper gestaltic function of seeing and being in relation with different kinds of (more or less material) objects. This gestaltic function is rooted in a human space of friction and precarious stability between sensory modalities and practices. On the empirical level, the focus is on the ways in which technologies and technical tools are used. On the transcendental level, however, the emphasis lies on the conditions of possibility of using media. The former interrogates the "device" by which we receive, express, communicate, and archive various meanings in specific situated conditions, while the latter explores the conditions of possibility of this instrumental device. The distinction between the empirical and the transcendental levels is crucial to an understanding of how media practices constitute a field of transformation, transposition, and transfiguration.

I have described this interdependency of the two levels with the German term *Versinnlichung* (partially translatable as "sensualization"),[7] rooted in the discourse on imagination in the seventeenth and eighteenth centuries and the gestaltic capacity—following Kant—of "schemata" that constitute meaning in the process of a hybrid mediation between sensibility and conceptualization.

7 See Lidia Gasperoni, *Versinnlichung. Kants transzendentaler Schematismus und seine Revision in der Nachfolge*, Actus et Imago, 20 (De Gruyter, 2016).

It is Johann Gottfried Herder, in particular, who re-proposes this theory in the form of a "metaschematism." With this notion, Herder introduces an extended transcendental field that involves a specific inquiry into the sensory modalities comprising the image and sound of language and a questioning of their morphogenetic capacity to become meaning. Schematism in its performative, anthropological, and phenomenological reinterpretation, drawing on readings by Plessner, Merleau-Ponty, and Deleuze, constitutes a field of interference between the empirical and the transcendental in which the schemes are not schematic content learned by use, but a sensory modality in which meaning becomes perceivable, material, and real through a media practice. Versinnlichung is the transcendental level that allows a space of human perception that can be expanded and transformed through practice, and the embodiment is the empirical level of situated practices.

The fact that a media practice is empirically established allow them to be shifted, transformed, or overcome—for example, in its discursive interpretations, pedagogical uses, or artistic practices (to name but a few). Destabilization and transformation initiate a potential space between media as sensory modalities and technological practices. This is a pivotal aspect to support a critical approach to specific uses of AI that has the ability to both establish and destabilize AI epistemologies in their connections to sensory schemes. In this perspective, the transcendental level is a counter-intuitive move. That is to say, its stability is not content-related, but process-related. It allows the use to be in a productive relation with the medium. That means that AI needs an experimental use to be a counter-practice of a conventional, and to a certain extent passive, use.

The transcendental level that investigates the gestaltic function of sensory experience and its transformation at the empirical level in the experience of plural worlds is, it can be argued, an answer to the general question of whether artificial intelligence and human intelligence correspond. The answer is no, if we assume that human intelligence is an embodied act that implies an act of making sensible (*Versinnlichung*) as a philosophical reflection on the plural ways through which a media practice unfolds our capacity to sense. In this perspective, a transcendental approach falls short of encompassing the full scope of performativity that implies—according to John Dewey—the "aesthetic" use of media. On the contrary, an instrumental, representational approach reduces tools to means that adapt to certain sensory modalities without crossing them. Mere "tools"—which Dewey defines as "means"—in the instrumental version indeed do not possess an aesthetic character; that is to say, they do not possess

a performative capacity to experiment with and hybridize sensory modalities to destabilize and shift canonical representations.

If architecture does not enter this space of fundamental mediation, it will instrumentalize and be instrumentalized by AI as a tool—as is true of many other analogue and digital tools. Architecture will be merely instrumentalized by the conventional empirical use that is available as pre-programmed. This will undermine the performative friction between a wide range of sensory modalities and multimodal devices—as I will explain concerning the performative role of experimental users.

Performativity and Reachability

On the empirical level, media practices can be defined as a (mutable) synthesis between sensory modalities and technological devices. This generative synthesis depends on the inventive capacity of the user, who not only uses the device to generate the output but changes its use by generating the output. It is within this domain that media experimentation emerges, namely in its capacity to change media practices from within, to unveil them, and to "hack" them with each use.[8] This process of hacking renders media practices unstable, while delving into the potential of the medium in the articulation of sensory experience and layers of meaning.

This performative ability, which destabilizes representation, is a human predisposition to experiment playfully with perceptions and meanings that should be preserved and educated. If human beings reduce their modes of use—from early childhood—to a passive use of media and digital media, this restrictive use will render them passive with respect to technology as a space of sensory mediation. This will result in a decreasing capacity to experience media as open devices, which is characterized by the interdependencies between sensory modalities and technologies. Passive users will become increasingly dependent on those who develop and disseminate technologies. It is therefore asserted that experimentation, also as an everyday pedagogical practice, is a

8 See Corneel Cannaerts, "Hacking Agency: Digitale Fabrikation als Entwurfsmedium," in *Media Agency – Neue Ansätze zur Medialität in der Architektur*, ed. Lidia Gasperoni and Christophe Barlieb (transcript Verlag, 2020), 179–96, and Corneel Cannaerts, "Mediality of code: Architectural design and coding practices," *Cloud-Cuckoo-Land* 25, no. 40 (2021): 25–43.

practice of activation with a processual, dynamic value capable of reopening and renegotiating the relationship between body and technology.

Performative practices of coding and re-coding generate software and applications that make a specific generation of content available and can generate content itself through a specific interaction and incremental learning. Applications and interfaces, functioning as protocol, are in this regard limited and controlled practices that seem to work well as a black box. This level of availability and control has been the focus of criticism by Hartmut Rosa, who employs the concept of *Unverfügbarkeit* ("uncontrollability"). This is defined as an experience that is uncontrolled and maintains a dynamic and inexhaustible relationality to the world. In this perspective, the user who exhausts this relation with the world, through the control and full availability of the medium, runs the risk of reducing the fullness of this experience and what Rosa defines as "resonance." The easy accessibility of the world, in particular with regard to digital media, ought to be critically constrained, according to Rosa.

However, Rosa's approach to the concept of *Erreichbarkeit* ("reachability") could function as a regulatory idea for the use of digital technology and AI, though he appears not to investigate the possibility further in this specific context: "Resonance requires a world that can be reached, not one that can be limitlessly controlled. The confusion between reachability and controllability lies at the root of the muting of the world in modernity."[9] *Erreichbarkeit* is the condition of possibility for the resonance of experiencing the world, which should possess a certain degree of reachability to enable an experience of the world that is not purely contingent. Reachability, as a further step of this argumentation, underscores the regulatory capacity of experimental media practices. In the specific case of Generative AI, this regulatory function entails the ability to access the underlying coding and programming, not for the purpose of complete control, but to enhance its semantic capacity. In this perspective, whoever is able to experiment with media and with Generative AI, too, employs the medium not to deliver an outcome, but rather to be the mediator both for the analysis of heterogenous and fragmented data and for the generation of an outcome. In this regard, a dualism between input and output—which are connected by fully inaccessible, unreachable computational processes—constitutes a situation where the space of mediation is out of play and turns the user into a passive agent.

9 Hartmut Rosa, *The Uncontrollability of the World* (Polity, 2020), 58.

In this perspective, the disposition towards media defines their use and their degree of reachability. Experimental processes represent an ongoing negotiation between mastery and resistance in the use of the medium, whereby a sensory practice is explored through a technological practice (be it analogue, digital, or hybrid). This experimental process can generate a novel media practice or assemblage of media practices that can then become conventional, established, and operationally iterable to such an extent that it becomes a "practice in use." This process renders it not only singular and contingent, but also replicable and usable. This is the transition from mere coding to software generation. In this modal shift from experimental to conventional practices at the technological level, the experimental value of the practice itself is rendered obsolete. It is the protocol of use (the transition from coding to software) and subsequent conventional use (in which the user employs the software according to pre-programmed possibilities) that create the limits of the black box.

The crux of experimentation therefore lies not in the development of media practices as controlled and available devices but in its generation or adaptation, where the distinction between the process and the maker appears to coalesce. The subjective disposition and the medium converge as if they were "transparent" and re-divert into a space of opacity.[10]

The Regulative Role of Experimental Users

Media are always potentially "hackable," namely in an act of learning a tool by grasping its agency as a medium. This act of opening and critically inquiring into media implies approaching the historic genealogies, transdisciplinary uses, and porous transmissions of media. The experimental user is a counter-figure, capable of a responsive coding and use of the "machine" to invent alternative and counter uses. This kind of user is an artisanal, creative, and multimodal encoder, a performative hybridizer, in certain cases a super-user[11] and cybercrafter.[12] The performative function of alternative uses of the machine is

10 See Markus Rautzenberg and Andreas Wolfsteiner, *Hide and Seek. Das Spiel von Transparenz und Opazität*, (Wilhelm Fink, 2010).

11 Cf. Randy Deutsch, *Superusers: Design Technology Specialists and the Future of Practice* (Routledge, 2019).

12 Cf. Christophe Barlieb, "Cybercraft: Das neue Paradigma," in *Media Agency*, ed. Gasperoni and Barlieb, 197–215.

a pivotal aspect of media studies, as Hans Ulrich Obrist recently stated: "When I was a student, I met the philosopher Vilém Flusser; he said we cannot control the machine, but we can use the machine in a way that the inventor of the machine didn't think one could use it."[13] While open media include fragmented signification, instrumentalized tools on the contrary exclude and reduce complexity. The most problematic aspect of technological reductionism is not the technology itself but the way in which it is narrated and used as fully available, yet is not reachable for certain fields of devices—with a specific reference here to spatial representation and design. The objective of theoretical reflection is therefore not to delineate the limits of these machinal devices, but rather to identify the human dimension in which they become media of experimentation and opening. This issue is also pertinent to the pressing need to elucidate the positionality of human agency in creating ecological practices. Such practices can serve to make ecosystems—undoubtedly more-than-human—in which humans participate and act, sensible. Mere implementation can sometimes open the black box, but only in order to progress on the technological level or, for example, to find other technological devices that can improve the design and representation of architectural spaces. Going beyond mere implementation, experimental users experiment with technological devices "from within" by crossing the boundaries between stable and unstable re-presentations. They open media on the critical level in order to break their mechanisms.

Experimental users should be able to respond to the experience of the world through coding as a sort of additional multimodal sensing that creates a hybrid synesthesia by perceiving and generating sensory outputs. They work behind the scenes of technical implementation and form generation. Some of them experiment by developing autonomous creative practices. In this perspective, experimental users have a specific operative, creative authorship. They are able to recognize and to a certain degree generate coding practices as a diagrammatic operative space beyond the generated output.

In their approach to mediality, in choosing a given medium and how to hybridize it, experimental users manage a complexity of a different order to that of computational and algorithmic complexity, which is now insurmountable for us.[14] It is precisely in the limitation of the human and its experience of the world that the regulative power of experimentation emerges as an act of medial

13 Catherine Malabou, "Plasticity, Intelligence and Mind," interview by Hans Ulrich Obrist, in *Atlas of Anomalous AI*, ed. Ben Vickers and K. Allado-McDowell (Ignota, 2020), 241.

14 On complexity, see Carpo, *Beyond Digital*, 158.

disposition and responsibility towards all that is more than human and transcalar. Such experimentation remains a heuristic process, even when "the next frontier of automation will beget a new kind of artisan workers carrying out unscripted, endlessly variable, inventive, and creative tasks."[15] In this heuristic process, the human being is the mediator not of *what* but of *how*. And in this perspective, the experimental user has a specific responsibility for designing an open box, making several types of coalescence between the made and the maker, the input and the output, the visible and the contextualizable.[16]

With this in mind, the role of experimental users beyond technological determinism should play a regulatory role in design practice and education. This addresses their legacy and visibility also at the moment when the open medium becomes a device, software, an application, and the experimental users no longer seem necessary. At that point, the operative diagram seems to coalesce with the output in the very act of use. Devices, software, and applications crystallize and control specific uses that can be reopened in a visible space of experimentation and re-adaptation.

Experimental users, in their ability to experiment with media, are often invisible. However, they should play a fundamental role in the historical and theoretical narrative of the transformation of architectural representation, which is often too focused on the figure of the architect as a generator of ideas and forms. It would exceed the limits of this essay to inquire into the distinction between architects and experimental users in the field of cybernetics[17] and in the development of digital design since the second half of the twentieth century, the institutional role of super-users in architectural education, and the development of architectural and engineering firms in the construction sector. It

15 Cf. Carpo, *Beyond Digital*, 160: "The next frontier of automation will beget a new kind of artisan workers carrying out unscripted, endlessly variable, inventive, and creative tasks to produce no more no less than the right amount of non-standard stuff we need: where we need it, when we need it, as we need it; made to specs, made on site, and made on demand."

16 Cf. Witt, "Shadowplays," 38: "As artificial intelligences model, incubate, and encapsulate cognition, that careful distinction between made and maker, thought and thinker may seem as antiquated as physical maquettes themselves. Between the maquette and the architect there is a new actor and mediator, the quasi-intelligent model that embeds human intuitions and hallucinates endlessly elastic images, drawings, and buildings."

17 Cf. Georg Vrachliotis, *The New Technological Condition: Architecture and Design in the Age of Cybernetics* (Birkhäuser, 2022).

could be asked whether super-users—as well as other actors, including materials, professional figures, climatic factors—are often reduced to mere mediators and translators of forms. In some cases, schools of architecture produce experimental users who are employed to make possible forms which are generated by others.

A shift in the institutional, pedagogical role of the experimental user is needed. But it also calls for a change of perspective with regard to future architects. They should be trained both to experiment in a plural field of media practices and to recognize the historical, political, social, or economic genealogies of the technologies used in design as well as their environmental impact. From this perspective, the figure of the experimental user—which can be found potentially in many laboratories, university workshops, software development companies, and offices—must be emancipated from the role of "supplier." In doing so, we can create a space of collaboration between the ability to reach a level of creative intuition through digital technologies and the urgent need to design just environments. And this is one of the great questions of the efficacy of architecture and its intelligence—and the way in which it is taught—that is, the ability to situate itself at the level of the environment as a multimodal field made up of multi-media practices, and with them to design its care and transformation. The ability to rethink architectural design as the constitution and co-existence of ecosystems[18] will be increasingly linked to the use of AI and Generative AI. This requires first and foremost a rethinking of design as a media and relational practice, i.e., a more porous hybridization between analogue and digital media. This porosity should not be confused with hybridization of techniques for architectural form generation; it is rather also a semantic project that shift meanings through media. This requires us also to consider the space of computation and coding as "dirty," as Hélène Frichot observes with reference to Jennifer Bloomer's work:

> Inspired by Bloomer, who is unafraid of mixing her thinking with the dirt and remaining open to productive if risky contaminations, the dirty tactics of 'dirty theory' throws dirt into the hegemonic machine of kingmakers, it offers

18 Cf. Randy Deutsch, *Superusers: Design Technology Specialists and the Future of Practice* (Routledge, 2019).

> up counter-narratives to disrupt the status quo, it seeks to introduce noise and grit into the system, to disrupt architecture, which must be troubled.[19]

This approach to design and making can be related to the transformative role of "counter-computational spatial practices" proposed by Laura Kurgan, Adam Vosburgh, and e-flux Architecture:

> If there is no outside, conscious computation must move beyond technological determinism, the black box, and the dream of 'liberation' from data and the map. The task at hand is to introduce the unknowable, uncertain, serendipitous, diverse—which is to say, wisdom, rather than data—into computational design. Taking on this difficult task, counter-computational spatial practices engage with the methods of spatial computing to challenge and propose alternatives to what is typically created by the very tools, infrastructures, or media they are using.[20]

This counter-space, which we could compare with the medium as a space of destabilization, has a critical and destabilizing value. It is an alternative way of opening up media given to us as usable tools to examine the network of political, economic, social, and cultural factors at the basis of their development and establishment. It is the value of this multiple and multimodal relationship that must always be reconstituted beyond the narratives of the unattainability of technical tools and their related epistemologies.

In this perspective, the experimental user as a regulative figure implies a relational and intersectional extension of epistemologies that are generated and established through media practices. With particular reference to AI, the edited volume *Atlas of Anomalous AI* questions the possibility of approaching AI as the "continuation of a wisdom tradition."[21] The essay "Making Kin with the Machines" embeds indigenous epistemologies into this perspective so as to

19 Hélène Frichot, "A Dirty Theory for a New Materialism: From Gilles Deleuze to Jennifer Bloomer," in *Utopia Computer: The "New" in Architecture?*, ed. Nathalie Bredella, Chris Dähne, and Frederike Lausch (University Press TU Berlin, 2023), 38.

20 Laura Kurgan, Adam Vosburgh, and e-flux Architecture, "Editorial: Spatial Computing," *e-flux Architecture*, June 17, 2024, https://www.e-flux.com/architecture/spatial-computing/614028/editorial/.

21 K. Allado-McDowell and Ben Vickers, "Introduction to Atlas of Anomalous AI", ed. Allado-McDowell and Vickers, 9.

question an epistemology of control (Jim Cheney) as a practice of appropriation of resources and elements that allow the use of AI and its materiality:

> The agency of stones connects directly to questions of AI, as AI is formed not only from code, but from materials of the Earth. To remove the concept of AI from its materiality is to sever this connection. Forming a relationship to AI, we form a relationship to the mines and the stones. Relations with AI are therefore relations with exploited resources. If we are able to approach this relationship ethically, we must reconsider the ontological status of each of the parts which contribute to AI all the way back to the mines from which our technology's material resources emerge.[22]

Relational Spaces and Practices

This countering role of experimental practices cannot avoid the question of signification: meaning production is not an unambiguous and objective correlation between content and form, but rather a relational space in a tangled web of meanings.[23] Media practices are the conditions of possibility for the sensitive experience with which human beings "practice" worlds by representing and transforming them. At the same time, media produce and determine through specific uses spatial design. Design processes, incorporating a range of media practices, are intrinsically relational and not neutral. With the objective of fostering an active relationship with the ecosystems in which we are immersed, the design of just environments requires a more plural, field-sensitive relational intelligence, which serves to generate the critical capacity to approach mediality as a relational space.

Keller Easterling's concept of "medium design" explores this empirical constitution of mediation. Medium design is a relational critical practice that explores situated objects not as given, fixed, and stable content, but as a "matrix" from which new relations and connections emerge. Easterling's approach

---

22 Jason Edward Lewis et al., "Making Kin with the Machines," in *Atlas of Anomalous AI*, ed. Allado-McDowell and Vickers, 49.

23 This conception of meaning can be criticized as semanticism, defined as "the application of semantic principles both as descriptive and generative framework for the discipline" that follows a specific ambition "to help architects both describe and generate the shapes and forms that populate our built environment." See Stanislas Challou, *Artificial Intelligence and Architecture* (Birkhäuser, 2022), 193–94.

draws on Gilbert Ryle's distinction between "knowing that" and "knowing how." In this vein, it goes beyond what might be termed a "semantics of content" that reduces knowledge to an understanding of content. It is through this semantics that various misunderstandings and reductionisms in the analytical, cognitive, and behavioral fields have emerged. Instead, medium design focuses on a "modal semantics," in which content emerges from relational modes that reveal alternative narratives:

> It asks readers to look with half-closed eyes at the world, focusing not only on objects with names, shapes, and outlines, but also on the matrix of medium of activities and latent potentials that those objects generate. It looks beyond object to matrix. It looks beyond nominative expressions to infinite expressions of activity and interplay. And it looks beyond declared ideologies to undeclared dispositions—beyond the authority of economic or political labels that often obscure or misrepresent latent potentials in organizations of all kinds.[24]

This paradigm shift from the "what" to the "how" is underpinned on a theoretical level by a reflection on both tacit knowledge and the notion of medium, apparatus, and dispositive, which Easterling identifies as a specific task for the designer. According to her, the designer's role is not to design objects but rather "the interplay between things."[25] This trajectory or field of transformative effects, termed "medium design" by Easterling, represents a third way that overcomes the polarization of conventional design and critical design practice. While conventional design, "it is assumed, must wait to be engaged by the market to prepare another right answer—a solution in the form of a building or a master plan," the critical design practitioner "must work for the absolute defeat of this market."[26] Medium design is defined by its relational nature, which enables the integration of diverse layers of information—political, social, economic, and environmental—present within "spatial arrangements." These arrangements are "information-rich," according to Easterling, "because of the coexistence rather than the succession of technologies. Most prized is not the newness of technologies but the relationships between them."[27]

---

24 Keller Easterling, *Medium Design: Knowing How to Work on the World* (Verso, 2021), x.

25 Easterling, *Medium Design*, xi.

26 Easterling, *Medium Design*, 9.

27 Easterling, *Medium Design*, 72.

Relationality should also be an experimental design practice when using AI. This is a fundamental aspect of Paola Sturla and Michael Jakob's coauthored essay concerning the interface that AI must possess with the human practitioner. They take Lawrence Halprin's design practice and the development of scores as a case in point:

> By recognizing that design aims at shaping the physical world and that the designer's point of view in itself biases the design process, we suggest that artificial intelligence could be engaged in a recursive feedback loop that expresses its aesthetic through its interface with the human practitioner. Such a feedback loop indicates the evolution of 'new-humanism' toward a renewed 'new-humanism,' a rediscovery of the creative agency of the designer in an un-hierarchical relationship with nature.[28]

Experimental spatial design emerges as a pivotal practice in this context. This primacy is linked to its capacity to traverse—even in its more post- or more-than-human iterations—a plural field of sensory modalities. Through the employment of specific technological devices, this field is subject to perpetual tightening or widening. The theory of mediality, inseparable from the praxis of media experimentation, is pivotal to comprehending the perceptual, design, and co-constitutive capacities of space, contingent on our pluralistic inhabitation of the earth. The nexus and liminal space between design and use must be a negotiable and interrogative space.

It is mediality that engenders a medium of stability in such a reflection, allowing us to reopen the field of media practices, to explore the potential and the limits of digital technologies, to suspend and overcome medial practices, and to create new hybrid practices. Furthermore, it enables us to critically approach the economic mechanisms that underlie the commodification of practices embedded in software. It compels a non-reductionist approach to spatial experience, facilitating the integration of plural epistemologies and the articulation of plural bodily, visual, and verbal languages.

28 Paola Sturla and Michael Jakob, "Artificial Intelligence as (Meta-)Art? Emergent Technologies in the Design Process," *Cloud-Cuckoo-Land* 25, no. 40 (2021): 87.

Practicing Theory as Interference and Divergence

This act of opening is indicative of the performative function of experimental practices that are defined as "heuristic," i.e., practices of discovering the known and unknown. The term "performative" is used with reference to Karen Barad's reference to performative approaches that "call into question the basic premises of representationalism and focus inquiry as well on the practices or performances of representing, as well as on the productive effects of those practices and the conditions for their efficacy."[29]

Understanding the performative value of mediation implies a specific way of "practicing theory" that is not merely reduced to a "theory of that" but it is a genuine "theory of how." That is to say, it becomes a thought of interference,[30] capable of displaying interdependences between discourse and material realities, thereby demonstrating the constituted character of representations generated by technological devices. The reaffirmation of the performative role of media, which is connected to the serendipity of scientific experimentation, in contemporary debate necessarily relates to rethinking a reductionist understanding of science. A conception of "exact science" underlies a reductionist perspective on technical implementation and the consequences it engenders. This reductionist perspective fails to encompass the serendipity and experientiality—highlighted by Isabelle Stengers, Bruno Latour, and Hans-Jörg Rheinberger—on the basis of effects produced by technologies. Its critique leads to a comprehensive discussion of the network of political, economic, social, and environmental factors from which technologies emerge, and of the networks of effects they generate. Beyond the confines of reductionism, a "divergent" theoretical and philosophical domain emerges in which the conditions, factors, and effects are reconsidered beyond a statuary conception of sciences—and technological determinism. As Stengers reminds us through her rereading of Deleuze and Guattari with respect to the "complementary lines of science and philosophy," this relational field is characterized by a divergence from the scientific paradigm. A philosophical "counter-effectuation," according to Stengers

29 Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Duke University Press, 2007), 28.

30 For a philosophical reflection of the concept of interference, see Lidia Gasperoni, "For an Architecture as a Productive Interference," *Stoa* 4, no. 9 (2024): 35–39.

> would create by its own means what busy scientists so easily forget, namely the 'dignity of event' that makes them busy. Such a perspective has a dream-like quality, however. It may help philosophers to resist, but we need to know what they have to resist, to characterize the kind of present they lack resistance to.[31]

From this standpoint, philosophy is a practice of interference with the objective of "opening up" deterministic constructs and situating experimental practices capable of establishing novel relationships between epistemologies, bodies, technical devices, and matter. The medium—or the open medium—is a practice of extending conventional signification and incorporating meanings that have been excluded from a representational and instrumental approach to "tools."

Theory then facilitates a holistic practice that opens the black box in which the practice of coding and production of software, applications, and interfaces—ready for utilization—appear to be contained. For this purpose, theory participates in practices, becoming an 'ethnography of practices'. This ethnography involves the observation of laboratories, workshops, pedagogies, and firms, with the aim of comprehending the transformative and experimental value of these practices. There is no exhaustive, universally applicable theory of any particular media practice, and consequently no definitive judgement on AI can be made. Instead, critical theory—as a sort of transformative comparativism—must examine the field of media efficacy—in one word, its experimental intelligence.

31 Isabelle Stengers, "Deleuze and Guattari's Last Enigmatic Message," *Angelaki* 10, no. 2 (2005): 158.