

INTERFACES 3

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Generators of Architectural Atmosphere

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Interfaces

Interfaces investigates the interplay of architecture, philosophy, and biology through the lens of meaning in architecture. Architecture is a thread, mending the fabrics of disparate realms of comprehension. There is a fractal-like intention of this book series to expand and contract in scale of observation. It serves less as a microscopic and precise account of the science of the experience|body|building triality, and more as a kaleidoscope of thought. The allegory of a kaleidoscope seems especially appropriate when reflecting upon its construction and mechanics. A telescoping container houses three mirrors, arranged to form an equilateral triangle toward a fixed axis. When introduced to vision, an optical unfolding occurs as light, color, depth, and angle are adjusted, producing nuance and clarity with each refinement. Furthering the metaphor, our telescoping container is atmosphere; our medium of vision is meaning in architecture; our triangular mirrored prism is the reflective and mutually inclusive realms of experience|body|building — or, always the sum of philosophy|biology|architecture.

Editorial policy

Interfaces began as an invention of the Advisory Council of the Academy of Neuroscience for Architecture (ANFA) to open our symposiums to the world through live performances, video recordings, and open-sourced publications. We operate here under no authority but in the spirit of academic enterprise.

Every text accepted and published in the Interfaces book series underwent an editorial review procedure that ensures high-quality content. The Interfaces scientific board is composed of academic members and experienced professionals.

Previous Issues

- 1 Meaning in Architecture: Affordances, Atmosphere and Mood**
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Introduction by Kevin Rooney
With essays by Michael A. Arbib, Bob Condia and Colin Ellard,
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- 2 Affordances and the Potential for Architecture**
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Introduction by Andrea Jelić
With essays by Sarah Robinson, Harry F. Mallgrave, James Hamilton

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Bob Condia

Introduction: The Applied Science of of Generating Atmospheres in Architecture

Let us ask, what is it architects make? Many people build buildings, architects among them. Yet architects know there are essential qualities in our relationship with places they call *atmospheres*. Recent advances in biological science are confirming architect's expert predispositions, while opening new doors of perception about the meaning of constructed spaces. *Generators of Architectural Atmosphere* presents a discourse concerning human awareness of design and buildings, specifically speaking to the significance of the atmosphere of places. *What* exactly do architects make? Architects make atmospheres that vibrate or resonate within us. *How* do architects sensibly make such atmospheres? Replying is a generous inquiry. And, *what* is it that generates the vibrations, the harmonics, and the geometry that sensibly inform behavior? Herewith we present three suggestions.

Elisabetta Canepa investigates how this mess around us, which we understand as a building's construction, transforms via the craft of atmospheric generators. **Kutay Güler** analyzes certain analogies from the experiences of virtual reality with questions of immersion and presence. Then, **Tiziana Proietti** and **Sergei Gepshtein** assert the sensorial influences and visual experiences of proportional space, understood as movement, projection, and conduct, hardened through the scientific method. In this concise summing of descriptions — architecture, phenomenology, and biology — *is there an applied science and craftsmanship for architects designing atmospheres?*

Let us see. By way of life, we perpetually find ourselves within atmospheres — even if customarily nonconsciously. It appears how atmospheres behave is something we inescapably need to diagnose. Architects, by way of professional exercise and observation, know that bounded

- F1** Bob Condia
Castelvecchio Museum
Verona, 2018
- Madonna and Child
with Saint Anne (Sant'Anna Metterza)
by Giovanni Zebellana
Castelvecchio, Reggia wing
exhibition space designed by Carlo Scarpa
1956–1975

spaces, rooms commonly speaking, are measured by our entire sensory systems, as a whole body, and understood by way of embodied simulation, manifesting via our brain's mirror mechanisms. Hence, *spaces mean something through atmospheres* because of what they afford us as potential actions, and possible life-engagements, always conditioned by our situated ambitions. The consequence of this evanescent exchange or resonant comprehension is *mood*. Here, mood is a simple concept implying our psychological condition adjusting attention through the instant, as we do with music, friendship, and art. From the discovery of mirror mechanisms in the brain comes an embodied simulation theory, which suggests a structural frame for aesthetic understanding in the architect's practice. Here is one of my favorite rooms in the world [F1]; an upper-floor gallery at the Castelvecchio (circa 1956 in Verona, Italy). The staging within this galleria frames an explicit *choreography* with precise observation, vision, light, and atmosphere.

The best example of a compositional atmosphere is this place. This room is quite remarkably designed, as no architect plus curator has ever understood *the body as the heart of measuring space* like Carlo Scarpa. For instance, the suspended painting on the right is tilted toward the door where the guard stands. An aesthetic entity composed for central vision, inviting focus and attention. While from the view of our doorway, Scarpa suggests a strangeness with the exposed back of the same painting. Interestingly, when one approaches this position, we encounter the micro or sub-space position (behind the painting) for the smaller picture to the right (on the wall), increasing the intimacy with the smaller picture. Then, when you turn to enter the main gallery, you are greeted by the large work (again in foveated vision) arranged to move your body towards an inspired distance to view the marble sculpture



at the window wall. And so, the choreography goes as the curator's genius gives away specific experiences of individual works within the wealth of the gallery. Proietti and Gepshtein will later suggest science for similar experiences.

Michael Arbib describes another careful measure of our engagement with space when telling us that atmosphere is our emotions filling up a place. Michael is a neuroscientist interested in architecture and the design of buildings. Over the last ten years, he and I have pursued a vocabulary traversing neuroscience and architecture. His book *When Brains Meet Buildings* (2021) is the preeminent attempt to pinpoint the architect's and neuroscientist's common curiosity in a science of space. It is a pretty good book, if at times difficult to read. It is a neuroscientist thinking about how the brain's biology senses and apprehends the spaces around our bodies. I believe this is the first examination of one's sensorial engagements with buildings from such a defensible and scientific perspective. From Arbib's point of view, atmospheres are the pervading tone and mood realized by affordances manifesting in schemas.

Of all the philosophers borrowed by architects, when it comes to atmosphere there is no one to rival Tonino Griffero. A neophenomenologist, or better an "atmospherologist," his vital definition of atmosphere is what you leave behind when you exit a room. A definition that is simply precise. Atmosphere is also the presence and collaborative co-experience of entering a room. In another example, he tenders the experience of an urban, glass-box-like bank lobby, where, for the workers of the institution, the experience is one of prestige, yet the same lobby that offers esteem to the employees is felt as oppression by a loan-seeking client. Same space, same lighting, and similar affordances, but very different in terms

of how one's sensations are acknowledged or felt. Make no mistake, what we carry with us as mood into an atmosphere has a lot to do with *how* we see it. Architects understand this multiplicity of simultaneous experiences as the poetics of their profession, although, such atmospherology is rarely discussed as anything but light. Canepa's atmospherology begins to suggest the architect's vocabulary by way of her generators of atmosphere.

The Earth's atmosphere, in pressure (at sea level) is 14.7 pounds per square inch on your skin, a force invisible to the human eye and consciously undetectable. That atmosphere, as a liquescent environment, moves well into the background, as it should be. And yet, as professionals discerning buildings, it is prudent for us to comprehend what our exchange with atmospheric presence is and how it informs behavior, voluntarily and otherwise. "In any case," as Tonino Griffero (2018) would say, "in today's debate, atmosphere is not simply meant as a decorative aspect of life, but rather as a feeling or affect that, being not private and internal but [objective] and spatially spread out, 'tinctures' the situation in which the perceiver happens to be and affectionally involves [herself]." So the color of an atmosphere shares instructions for behavior, even as we change it amid our presence. And what we convey into it, our mood, or the focus of our moment, correspondingly engenders something specific to our visit. *Is it we who generate atmospheres by being available in them?*

Fortunately, the scientists employed in the neuroscience and architecture debate have acquired Peter Zumthor as the architect they most appreciate. This is a significant intersection because architects appreciate his wisdom too. For instance, Peter Zumthor declares in the introduc-

tion to his little book about atmosphere that “I’ve been keeping [a keen] eye on myself, and I’m going to give you an account now, [...] of what I’ve found out about the way I go about things and what [comes to] me most when I try to generate a certain atmosphere in one of my buildings. Of course, these answers to the question are highly personal. I have nothing else” (2006, 21). Right. So, the instrument of his understanding of atmosphere, both as a designer and as a person, is his biological senses and memories. We all have the same bodily instruments, only our neurological and sensory tuning differs. An architect as an atmospherologist will be tuned to the generators of human behaviors, meaning the *language of atmospheres*.

Architecture always means something by way of an invitation to action. Architecture always creates atmosphere; sensing what these are is the architect’s prerogative and responsibility. This is the position of **Elisabetta Canepa** in our first chapter, “The Atmospheric Equation and the Weight of Architectural Generators.” The basic generators of experience from atmospheres can be categorized as biographical, sensorial, and contextual. How we sense this is through a resonance between our body and the spaces we attend to. Her mathematics are quite interesting, by the way. **Kutay Güler** studies atmosphere through virtual reality (VR). His opening volley in “Sensing the Atmospheric Space Through a Virtual Lens: Scrutinizing Opportunities and Limitations” is a noteworthy history of VR architecture and research of the 2015–2016 revolution with the advent of powerful desktop machines. That such precise simulation of experience is available for architectural work infers many investigations for designers. The issues seem to be about presence and immersion; that is: how valid is the virtual? Güler explains his effort to discern, by way of experiments, the discourse on spatial perception,

resolving the relationship between immersion and presence. The key to this may lie in the symptomatic cybersickness people endure when their minds are in one space and their bodies another. This then begs the question for designers about the validity of such disengaged experiences for design decisions. **Sergei Gepshtein** and **Tiziana Proietti** are a team of a neuroscientist plus an architect (respectively) inquiring into the most basic unit of an architect’s spatial toolbox in atmosphere: proportion. In “Locating Architectural Atmosphere,” they profoundly suggest that geometry (like atmosphere) is an affordance of space and time. Their experiments revealed three layers of visual experience from which humans interact with form through movement and perception. If the Renaissance suggested proportions through one point perspective, contemporary biology confers dynamic spatial engagements of overlap. In short, the three chapters admit that *atmospheric experience is more of a verb than a noun*.

My summation is that when considering the true language of atmosphere, we need three apparatuses to help us: 1. — *Architecture* as design, form, and construction; 2. — *Philosophy* as in a phenomenological description of the spaces in which we find ourselves, and as a way of reading and understanding human nature relative to the world around us; and, 3. — *Neuroscience* by which I mean the biology of the human body in relationship to atmospheres in the life-world. Atmospheres are understood through all our sensory organs as potentials for actions. We are in the world as active agents, and the world is tacit in terms of our neurological systems as a response to what we can do in these spaces. Let us see if we can apply some of this thinking, so briefly introduced, and discover how we generate atmospheres.

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